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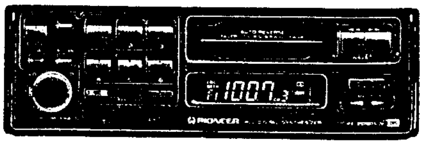
Service Manual

•KE-2090SDK



ORDER NO.
CRT1214

CASSETTE CAR STEREO WITH FM/MW/LW ELECTRONIC TUNER

KE-2090SDK WG
KE-2030SDK WG
KE-2090B EW
KE-2030B EI

CASSETTE CAR STEREO WITH FM/AM ELECTRONIC TUNER

KE-2020 ES

See the Service manual CX-166(CRT1094) when servicing the cassette mechanism assy.

CONTENTS

1. SPECIFICATIONS 2
2. CONNECTIONS 2
3. SWITCHING THE TUNING STEPS (KE-2020) 4
4. USING THE RADIO 4
5. USING THE TAPE DECK 5
6. DISASSEMBLY 6
7. ADJUSTMENT 8
8. SCHEMATIC CIRCUIT DIAGRAM (KE-2090SDK) . . . 16
9. CONNECTION DIAGRAM (KE-2090SDK) 19
10. SCHEMATIC CIRCUIT DIAGRAM (KE-2030SDK) . . . 22
11. CONNECTION DIAGRAM (KE-2030SDK) 25
12. CONNECTION DIAGRAM (KE-2090B) 28
13. SCHEMATIC CIRCUIT DIAGRAM (KE-2090B) 31
14. SCHEMATIC CIRCUIT DIAGRAM (KE-2030B) 33
15. CONNECTION DIAGRAM (KE-2030B) 35
16. CONNECTION DIAGRAM (KE-2020) 38
17. SCHEMATIC CIRCUIT DIAGRAM (KE-2020) 41
18. EXPLODED VIEW 43
19. CASSETTE MECHANISM ASSY EXPLODED VIEW . 47
20. ELECTRICAL PARTS LIST 50
21. PACKING METHOD 54

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EK MAY 1989 Printed in Japan

1. SPECIFICATIONS

General (KE-2090SDK,KE-2090B)

Power souce	14.4 V DC (10.8 – 15.6 V allowable)
Grounding system	Negative type
Max. current consumption	2.5 A
Dimentions (chassis)	180(W) × 50(H) × 150(D) mm
(front face)	188(W) × 58(H) × 10(D) mm
Weight	1.3 kg

General (KE-2030SDK,KE-2030B)

Power souce	14.4 V DC (10.8 – 15.6 V allowable)
Grounding system	Negative type
Max. current consumption	1.8 A
Dimentions (chassis)	180(W) × 50(H) × 150(D) mm
(front face)	188(W) × 58(H) × 10(D) mm
Weight	1.3 kg

General (KE-2020)

Power souce	14.4 V DC (10.8 – 15.6 V allowable)
Grounding system	Negative type
Max. current consumption	1.8 A
Dimentions (chassis)	178(W) × 50(H) × 150(D) mm
(nose)	188(W) × 58(H) × 10(D) mm
Weight	1.3 kg

Amplifier (KE-2090SDK,KE2090B)

Maximum power output	8.5 W × 2/7 W × 4 (EIAJ)
Continuous power output	4.5 W × 2/3.5 W × 4 (1% dist. at 1kHz)
Load impedance	4 Ω (4 – 8 Ω allowable)
Loudness contour	+ 8 dB (100 Hz) (volume: -30 dB)

Amplifier (KE-2030SDK,KE2030B)

Maximum power output	8.5 W × 2 (EIAJ)
Continuous power output	4.5 W × 2 (1% dist. at 1 kHz)
Load impedance	4 Ω (2 – 8 Ω allowable)
Loudness contour	+ 8 dB (100 Hz) (volume: -30 dB)

Amplifier (KE-2020)

Maximum power output	8.5 W × 2 (EIAJ)
Continuous power output	4.5 W × 2 (1% dist. at 1 kHz)

Continuoud power output is 3.2 W per channel min. into 4 ohms, both channels droven 50 to 15,000 Hz with no more than 5 % THD.

Load impedance	4 Ω (2 – 8 Ω allowable)
Loudness contour	+ 8 dB (100 Hz) (volume: -30 dB)

Tape player

Tape	Compact cassette tape (C-30 – C-90)
Tape speed	4.76 cm/sec. (+ 0.14 cm/sec., -0.05 cm/sec.)
Fast forward/rewind time	Approx. 100 sec. for C-60
Wow & flutter	0.13% (WRMS)
Frequency response	50 – 14,000 Hz (± 3 dB)
Stereo separation	45 dB
Signal-to-noise ratio	52 dB (IEC-A network)

FM tuner

Frequency range	87.5 – 108 MHz
Usable sensitivity	12 dBf (1.1 µV/75 Ω, mono)
50 dB quieting sensitivity	17 dBf (1.9 µV/75 Ω, mono)
Signal-to-noise ratio	70 dB (IEC-A network)
Distortion	0.3% (at 65 dBf, 1 kHz stereo)
Frequency response	50-15,000 Hz (± 3 dB)
Stereo separation	40 dB (at 65 dBf, 1 kHz)

MW tuner (KE-2090SDK, KE-2090B, KE-2030SDK, KE2030B)

Frequency range	531 – 1,602 kHz
Usable sensitivity	18 µV (25 dB) (S/N: 20 dB)
Selectivity	50 dB (± 9 kHz)

AM tuner (KE-2020)

Frequency range	531 – 1,602 kHz (9 kHz) 530 – 1,620 kHz (10 kHz)
Usable sensitivity	18 µV (25 dB) (S/N: 20 dB)
Selectivity	50 dB (± 9 kHz) 50 dB (± 10 kHz)

LW tuner (KE-2090SDK, KE-2090B, KE-2030SDK, KE2030B)

Frequency range	153 – 281 kHz
Usable sensitivity	30 µV (30 dB) (S/N: 20 dB)
Selectivity	50 dB (± 9 kHz)

Note:
Specifications and the design are subject to possible modification without notice due to improvements.

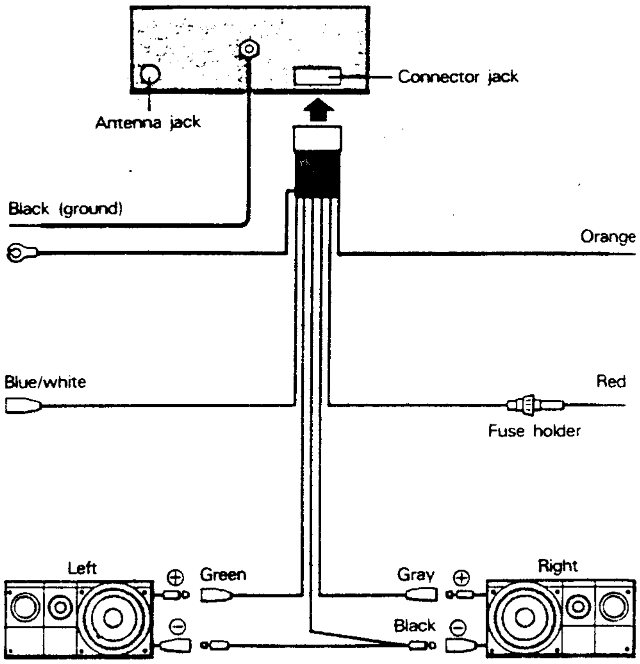
2. CONNECTIONS

Note:

- To avoid shorts in the electrical system, be sure to disconnect the battery ⊖ cable before beginning installation.
- Replace fuses only with the types stipulated on the fuse holder.
- Be sure to properly connect the color coded leads. Failure to do so can cause malfunctions.

Black (ground)	To vehicle (metal) body.
Blue/white	To auto-antenna power terminal (Max. 300 mA 12 V DC).
Red	To electric terminal controlled by ignition switch (12 V DC) ON/OFF.
Orange	To terminal always supplied with power regardless of ignition switch position.

KE-2020



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Mark	Circuit Symbol & No.	Part Name	Part No.
**	IC 903(KE-2090SDK, KE-2030SDK)		TA75558S
**	Q 51 202 251 252 501 511		2SC2458
**	Q 52 610		DTC124TS
**	Q 53 609		2SA1048
**	Q 201		2SK435
**	Q 203 516		2SC3113
**	Q 503(KE-2090SDK, KE-2030SDK)		2SC2458
**	Q 504(KE-2090SDK, KE-2030SDK)		2SC2458
**	Q 505(KE-2090SDK, KE-2030SDK)		2SC2458
**	Q 509		2SC2498
**	Q 510 606		DTA114ES
**	Q 512(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)		2SC2458
**	Q 513		2SK330
**	Q 514 515 607 608 651 652		2SC2458
**	Q 601		2SA1150
**	Q 602 605		DTC114ES
**	Q 603 604		2SD1468S
**	Q 901(KE-2090SDK, KE-2030SDK)		2SC2458
**	Q 902(KE-2090SDK, KE-2030SDK)		2SC2458
**	Q 903(KE-2090SDK, KE-2030SDK)		2SK30A
**	Q 904(KE-2090SDK, KE-2030SDK)		2SA1048
**	Q 905(KE-2090SDK, KE-2030SDK)		2SC2458
**	Q 906(KE-2090SDK, KE-2030SDK)		2SC2634NC
*	D 151 153 154 201 202 204 205 207 208 251		1SS133
*	D 203	Variable Capacitance Diode	SVC203-AB
*	D 253 254 501 503 506 507 508 510		1SS133
*	D 502(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)		1SS133
*	D 504(KE-2090SDK, KE-2030SDK)		1SS133
*	D 505(KE-2020) 515(KE-2020)		1SS133
*	D 511 512		1SS135
*	D 513		RD8R2JSB1
*	D 514		RD3R0ESB2
*	D 516 519 523 602 603 604 605 606		1SS133
*	D 517(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)		MA700
*	D 518		RD5R6JSB2
*	D 520		RD5R1JSB2
*	D 607		RD10JSB2
*	D 801 802		ERA15-02VH
*	D 803 804		MAA4371F-R
*	D 901(KE-2090SDK, KE-2030SDK)		1SS133
	L 51 52	Ferri-Inductor	LAU150K
	L 201	Ferri-Inductor	CTF1026
	L 202	Ferri-Inductor	LAU220K
	L 203 205 501	Ferri-Inductor	LAU470K
	L 204 502	Ferri-Inductor	LAU2R2M
	L 801	Choke Coil	CTH1021
	L 802(KE-2090SDK, KE-2030SDK, KE-2030B)		CCG1003
	L 803(KE-2090SDK, KE-2030SDK, KE-2030B)		CCG1003
	L 901(KE-2090SDK, KE-2030SDK)	Coil	CTF-125
	T 51	Coil	CTC1029
	T 201	Coil	CTB1003
	T 202	Coil	CTB1004
	T 203	Coil	CTB1006
	T 204	Coil	CTE1006
	T 205	Coil	CTE1007
	T 206	Coil	CTE1008
	CF 51 52	Ceramic Filter	CTF-182
	CF 201	Filter	CTF1027 (CTF1041)
	CF 202	Filter	CTF-100
	CR 101(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)		CWW-107
	H 101	Surge Protector	DSP-201M-S00
	X 151	Ceramic Resonator	CSS1022
	X 201	Crystal Resonator	CSS1014
	X 501	Crystal Resonator	CSS1011
	X 901(KE-2090SDK, KE-2030SDK)	Ceramic Resonator	CSS1022
**	IL 801 802 803 804	Lamp 14V 40mA	CEL1004 (CEL1025)
**	VR 51	Semi-fixed 150kΩ (B)	VRTB6VS154
**	VR 152	Semi-fixed 15kΩ (B)	VRTB6VS153
**	VR 451/VR452/VR453/VR551/S801 (KE-2090SDK, KE-2090B)	Volume/Switch	CCS1136
**	VR 451/VR452/VR453/S801 (KE-2030SDK, KE-2030B, KE-2020)	Volume/Switch	CCS1134
**	VR 901(KE-2090SDK, KE-2030SDK)	Semi-fixed 47kΩ (B)	VRTB6VS473
**	VR 903(KE-2090SDK, KE-2030SDK)	Semi-fixed 220kΩ (B)	VRTB6VS221
**	VR 904(KE-2090SDK, KE-2030SDK)	Semi-fixed 15kΩ (B)	VRTB6VS153
**	S 501(KE-2020)	Switch(9k/10k)	HSH-156
**	S 801 802 803 804 805 806 807 808 809 810	Switch	CSG-253
**	S 811	Switch	CSG-253
**	S 812(KE-2090SDK, KE-2030SDK)	Switch	CSG-253
		LCD	CAW1055
		FM Front End	CWB1035

RESISTORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	R 1 2 3 4 36 51 213 218 220		RS1/10S0R0J
	R 5		RS1/10S560J
	R 31 34 542 615 621		RS1/10S223J
	R 35 58		RS1/10S682J
	R 37		RS1/10S912J
	R 52		RS1/10S331J
	R 53 57 159 541 611		RS1/10S473J
	R 54 532 534 551 552 601 602 603		RD1/4PS103JL
	R 55 60 555 556		RS1/10S153J
	R 56		RS1/10S123J
	R 59		RD1/4PS183JL
	R 61 153 515		RS1/10S472J
	R 62 271 528 535		RD1/4PS472JL
	R 101(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)		RS1/10S332J
	R 101(KE-2020)		RS1/10S183J
	R 102(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)		RS1/10S392J
	R 103(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)		RS1/10S333J
	R 104(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)		RS1/10S682J
	R 105(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)		RS1/10S222J
	R 151 604 616		RS1/10S222J
	R 152(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)		RS1/10S223J
	R 152(KE-2020)		RS1/10S0R0J
	R 156 157		RS1/10S332J
	R 158		RS1/10S334J
	R 201		RD1/4PS220J

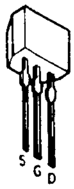
Mark	Circuit Symbol & No.	Part Name	Part No.
	R 202		RS1/10S681J
	R 204 504 505 531 605 657 658		RD1/4PS473JL
	R 205 209		RD1/4PS470JL
	R 207 544		RD1/4PS822JL
	R 208 272 522 617 618		RS1/10S103J
	R 210 269 270 545		RD1/4PS682JL
	R 212 619		RS1/10S221J
	R 214 215 253 254 501 512 517 524 526 614		RD1/4PS222JL
	R 216		RS1/10S104J
	R 255 256		RD1/4PS131JL
	R 257 258		RD1/4PS133JL
	R 259 260		RD1/4PS334JL
	R 261 262		RD1/4PS152JL
	R 263(KE-2090SDK, KE-2030SDK)		RS1/10S0R0J
	R 451 452		RD1/4PS272JL
	R 453 454 653 654		RD1/4PS102JL
	R 502 518 527 529 537 539 613		RS1/10S102J
	R 506(KE-2090SDK, KE-2030SDK)		RD1/4PS103JL
	R 508(KE-2090SDK, KE-2030SDK)		RD1/4PS104JL
	R 509(KE-2090SDK, KE-2030SDK)		RD1/4PS473JL
	R 510(KE-2090SDK, KE-2030SDK)		RD1/4PS103JL
	R 511(KE-2090SDK, KE-2030SDK)		RD1/4PS473JL
	R 514 519 553 554		RD1/4PS101JL
	R 516		RD1/4PS222JL
	R 523		RD1/4PS331JL
	R 525(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)		RD1/4PS473JL
	R 530		RS1/10S152J
	R 533		RD1/4PS104JL
	R 536		RD1/4PS820JL
	R 538 546		RS1/10S0R0J
	R 547(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)		RS1/10S0R0J
	R 557		RS1/10S010K
	R 607 608		RD1/4PS103JL
	R 612		RS1/10S333J
	R 622(KE-2090SDK, KE-2030SDK)		RD1/4PS473JL
	R 651 652		RD1/4PS154JL
	R 655(KE-2090SDK, KE-2030SDK)		RD1/4PS221JL
	R 655(KE-2090B, KE-2030B, KE-2020)		RD1/4PS331JL
	R 656(KE-2090SDK, KE-2030SDK)		RD1/4PS221JL
	R 656(KE-2090B, KE-2030B, KE-2020)		RD1/4PS331JL
	R 659(KE-2090SDK, KE-2030SDK)		RS1/8S100J
	R 662(KE-2090SDK, KE-2030SDK)		RS1/8S100J
	R 751(KE-2090SDK, KE-2030SDK)		RD1/4PS272JL
	R 752(KE-2090SDK, KE-2030SDK)		RD1/4PS272JL
	R 753(KE-2090SDK, KE-2030SDK)		RD1/4PS133JL
	R 754(KE-2090SDK, KE-2030SDK)		RD1/4PS133JL
	R 755(KE-2090SDK, KE-2030SDK)		RD1/4PS221JL
	R 756(KE-2090SDK, KE-2030SDK)		RD1/4PS2R7JL
	R 801 802		RD1/4PS331JL
	R 803(KE-2020)		RS1/10S102J
	R 901(KE-2090SDK, KE-2030SDK)		RS1/10S473J
	R 902(KE-2090SDK, KE-2030SDK)		RS1/10S472J
	R 903(KE-2090SDK, KE-2030SDK)		RS1/10S104J
	R 904(KE-2090SDK, KE-2030SDK)		RS1/10S104J
	R 905(KE-2090SDK, KE-2030SDK)		RS1/10S104J
	R 906(KE-2090SDK, KE-2030SDK)		RS1/10S223J
	R 907(KE-2090SDK, KE-2030SDK)		RS1/10S181J
	R 908(KE-2090SDK, KE-2030SDK)		RS1/10S102J
	R 909(KE-2090SDK, KE-2030SDK)		RS1/10S223J
	R 910(KE-2090SDK, KE-2030SDK)		RS1/10S102J
	R 911(KE-2090SDK, KE-2030SDK)		RS1/10S221J
	R 912(KE-2090SDK, KE-2030SDK)		RS1/10S681J
	R 913(KE-2090SDK, KE-2030SDK)		RS1/10S224J
	R 915(KE-2090SDK, KE-2030SDK)		RD1/4PS223JL
	R 919(KE-2090SDK, KE-2030SDK)		RS1/10S103J
	R 920(KE-2090SDK, KE-2030SDK)		RS1/10S104J
	R 921(KE-2090SDK, KE-2030SDK)		RS1/10S682J
	R 923(KE-2090SDK, KE-2030SDK)		RS1/10S182J
	R 925(KE-2090SDK, KE-2030SDK)		RS1/10S473J
	R 926(KE-2090SDK, KE-2030SDK)		RS1/10S222J
	R 927(KE-2090SDK, KE-2030SDK)		RS1/10S0R0J
	R 928(KE-2090SDK, KE-2030SDK)		RD1/4PS153JL
	R 929(KE-2090SDK, KE-2030SDK)		RS1/10S152J
	R 930(KE-2090SDK, KE-2030SDK)		RS1/10S564J
	R 932(KE-2090SDK, KE-2030SDK)		RS1/10S823J
	R 933(KE-2090SDK, KE-2030SDK)		RS1/10S473J
	R 934(KE-2090SDK, KE-2030SDK)		RD1/4PS103JL
	R 935(KE-2090SDK, KE-2030SDK)		RS1/10S0R0J
	R 936(KE-2090SDK, KE-2030SDK)		RS1/10S103J
	R 937(KE-2090SDK, KE-2030SDK)		RS1/10S123J
	R 940(KE-2090SDK, KE-2030SDK)		RS1/10S0R0J

CAPACITORS

Mark	Circuit Symbol & No.	Part Name	Part No.
	C 31 51 52 53 54 59		CKSQYF473Z50
	C 34 (KE-2090B, KE-2030B, KE-2020)		CKSQYB102K50
	C 34 (KE-2090SDK, KE-2030SDK)		CCSQCH102J50
	C 35 201 217 223 228 229 507 517		CKSQYF103Z50
	C 55 62		CCSQCH330J50
	C 56 63 457 458		CEAR47M50LL
	C 57 226		CKSQYF104Z25
	C 58 156 211 522 553 554		CEA010M50LL
	C 60		CCSQSL101J50
	C 61(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)		CEA4R7M16NPLL
	C 61(KE-2020)		CEA220M16NPLL
	C 64 205 213		CCSQCH220J50
	C 101(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)		CKSQYF103Z50
	C 102(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)		CKSQYF103Z50
	C 103(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)		CEA150M16LS
	C 104(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)		CKSQYB182K50
	C 105(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)		CEA470M16LS
	C 151(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)		CKSQYF473Z50
	C 151(KE-2020)		CEAR47M50LS2
	C 152 202 214 513		CKSQYB332K50
	C 153 204 208 210		CKSQYF223Z50
	C 154		CKSQYB153K50
	C 155		CEA3R3M50LL
	C 157		CSZAR22K35L
	C 158(KE-2090SDK, KE-2030SDK)		CKSQYB681K50
	C 159 160		CKSQYB183K25

- **ICs and Transistors**

2SK330



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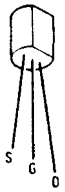

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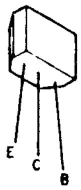
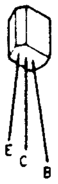


2SA1048
2SA1150
2SC2458
2SC3113



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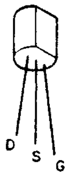

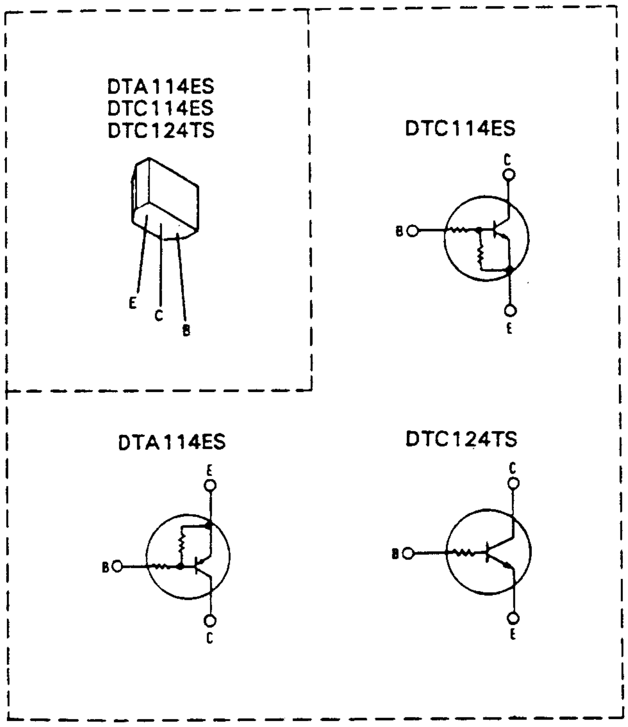

DTA114ES
DTC114ES
DTC124TS

DTC114ES

DTA114ES

DTC124TS

E
C
B
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B
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B
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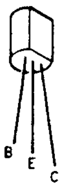
2SC2498



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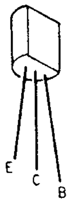
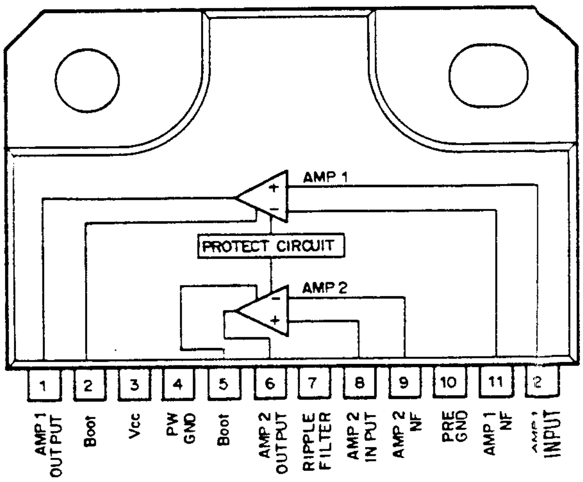
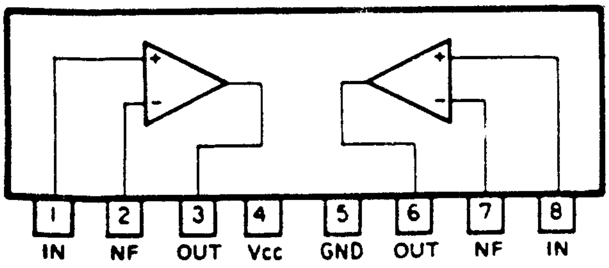


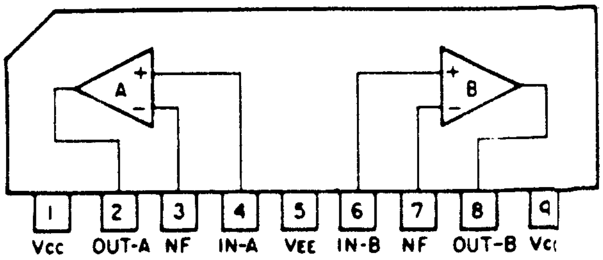
TA7281P


AMP 1
PROTECT CIRCUIT
AMP 2
1
2
3
4
5
6
7
8
9
10
11
2
AMP 1 OUTPUT
Boot
Vcc
PW GND
Boot
AMP 2 OUTPUT
RIPPLE FILTER
AMP 2 IN PUT
AMP 2 NF
PRE GND
AMP 1 NF
AMP 1 INPUT

M51522AL


1
2
3
4
5
6
7
8
IN
NF
OUT
Vcc
GND
OUT
NF
IN

TA75558S


A
B
1
2
3
4
5
6
7
8
9
Vcc
OUT-A
NF
IN-A
VEE
IN-B
NF
OUT-B
Vc

AM ADJUSTMENT (KE-2020)

KE-2020 ....10kHz/9kHz Switch: 9kHz

	No.	AM SSG(400Hz, 30%)		Displayed Frequency (kHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency(kHz)	Level(dBμV)			
Tuning volt	1			1,602	T203	DC V Meter:Less than 6.0V
	2			531	——	Verify that DC V Meter more than 2.0V.
IF	1	999	20－25	999	T204, T205, T206	mV Meter(4):Maximum

FM ADJUSTMENT

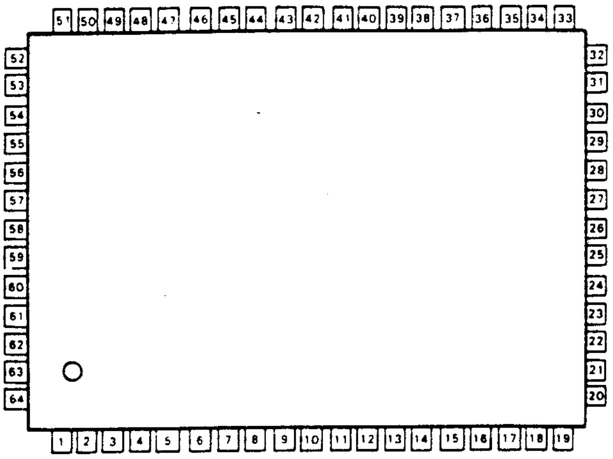
※Stereo MOD.:1kHz, L+R=90%, Pilot=10%

	No.	FM SSG(400Hz, 100%)		Displayed Frequency (MHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency(MHz)	Level(dBμV)			
IF	1	98.1 Unmodulated	60	98.1	T51	Center Meter:0
Front End	1			108.0	L5	DC V Meter:6.5±0.2V
	2			87.5	——	DC V Meter:1.5±0.6V
	3	98.1	5－10	98.1	T1	mV Meter(4):Maximum
ARC	1	98.1※	60	98.1	——	mV Meter(4):A dB (This output is A)
	2	98.1※	10	98.1	VR51	mV Meter(4):A－3dB
	3	98.1※	35	98.1	VR152	mV Meter(4):Separation 5dB

SDK ADJUSTMENT (KE-2090SDK, KE-2030SDK)

	No.	ARI Oscillator	Displayed Frequency (MHz)	Adjusting Point	Adjustment Method (Switch Position)
SDK	1	SK(57kHz, 5%), 10mV rms		L901, VR903	mV Meter(1):Maximum
	2	SK(57kHz, 5%), 5mV rms		VR901	SDK indicator lights
	3	SK(57kHz, 5%), 0mV rms		——	Verify that SDK indicator doesn't light.
	4	SK(57kHz, 5%), 3.8mV rms		——	Verify that SDK indicator doesn't light.
	5	SK(57kHz, 5%), 5mV rms and DK(125kHz, 30%)		VR904	Adjust so that the level difference between mV Meter(2) and mV Meter(3) becomes 2dB.

*PD4097B

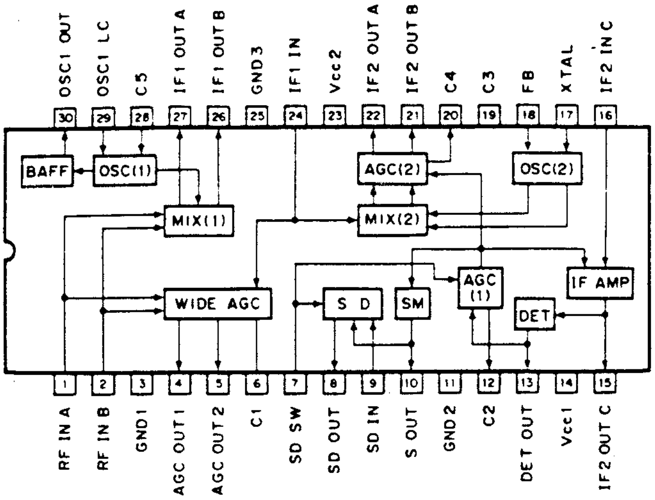


*IC's marked by * are MOS type.*
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

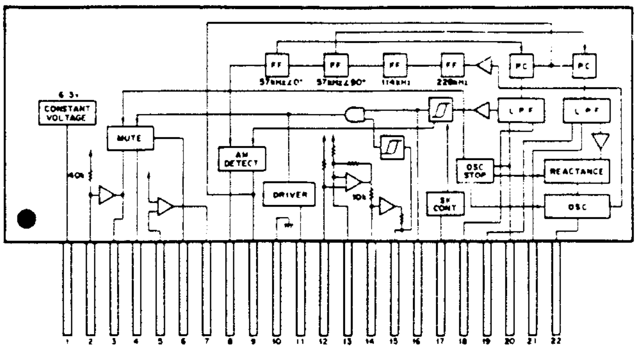
• Pin functions (PD4097B)

<table>
<tr><th>Pin No.</th><th>Pin Name</th><th>I/O</th><th>Function and Operation</th></tr>
<tr><td>1</td><td>NC</td><td>—</td><td>No. connected to internal chips.</td></tr>
<tr><td>2
3</td><td>E01
E02</td><td>Output
CMOS
3 state</td><td>PLL error output. H level output by these terminals when division of local oscillator frequency (VCO output) is higher than reference frequency. L level output when lower. This output is applied to a varactor diode, via an external low pass filter. E01 and E02 output identical waveforms.</td></tr>
<tr><td>4
8</td><td>GND
GND</td><td>—
—</td><td>GND terminal</td></tr>
<tr><td>5</td><td>AM</td><td>Input</td><td>Inputs 0.6～15 MHz (0.3 Vp-p MIN) local oscillator reference frequency (VCO output). This terminal is active when direct division system is selected.</td></tr>
<tr><td>6</td><td>FM</td><td>Input</td><td>Inputs 15～150 MHz (0.5 Vp-p MIN) local oscillator reference frequency (VCO output). This terminal is active when swallow counter method is selected.</td></tr>
<tr><td>7</td><td>CE</td><td>Input</td><td>Device signal input. H level during normal device operation, L level when deivce is not being used. PLL is in disable status while this terminal is L level. For models without clocks, internal clock and CPU operation is halted while this terminal is L level, and memory is maintained by low demand current (10 μA MAX). Change of CE terminal from L to H results in device reset and the program to start from address 0.</td></tr>
<tr><td>9
10</td><td>FM/AM
LW</td><td>Output
CMOS
Pushpull</td><td>Power supply switching output terminal for tuner. Output as illustrated in following table according to outputs of two terminals.
<table>
<tr><th>BAND / PIN</th><th>FM</th><th>MW</th><th>LW</th></tr>
<tr><td>FM/AM</td><td>H</td><td>L</td><td>L</td></tr>
<tr><td>LW</td><td>H</td><td>H</td><td>L</td></tr>
</table></td></tr>
<tr><td>11</td><td>LOC</td><td>Output
CMOS
Pushpull</td><td>Halt sensitivity switching terminal controlled by LOC key. H level output only for auto tuning in LOC mode.</td></tr>
<tr><td>12</td><td>$\overline{\text{MUTE}}$</td><td>Output
CMOS
Pushpull</td><td>Mute output. Output for elimination of shock noise when PLL lock is released. Active when low.</td></tr>
<tr><td>13</td><td>SDK</td><td>Output
CMOS
Pushpull</td><td>Output terminal controlled by SDK key. H level output in SDK mode.</td></tr>
<tr><td>14</td><td>DK OUT</td><td>Output
CMOS
Pushpull</td><td>Controlled by DK IN (terminal #17 input signal. H level output when DK IN input signal is detected as 125 Hz while SK (terminal #18) input is L level. Since DK IN measurement operation is only performed in SDK mode, terminal is always L in SDK mode except under above noted conditions.</td></tr>
<tr><td>15</td><td>AL</td><td>Output
CMOS
Pushpull</td><td>Controlled by SK (terminal #18) input signal. SK continues in SDK mode, and L level is output when SK continues for 30 seconds. Alarm tone is output after AL terminal output L level.</td></tr>
<tr><td>16</td><td>AM IF</td><td>Input</td><td>MW, LW band intermediate frequency input terminal. Used for broadcast detection in MW, LW band auto tuning.</td></tr>
</table>

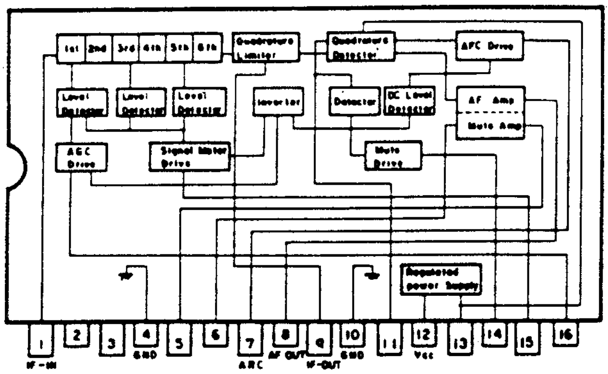
PA4010


OSC1 OUT
OSC1 LC
C5
IF1 OUT A
IF1 OUT B
GND3
IF1 IN
Vcc2
IF2 OUT A
IF2 OUT B
C4
C3
FB
XTAL
IF2 IN C
30
29
28
27
26
25
24
23
22
21
20
19
18
17
16
BAFF
OSC(1)
MIX(1)
AGC(2)
MIX(2)
OSC(2)
WIDE AGC
S D
SM
AGC (1)
IF AMP
DET
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
RF IN A
RF IN B
GND1
AGC OUT1
AGC OUT2
C1
SD SW
SD OUT
SD IN
S OUT
GND2
C2
DET OUT
Vcc1
IF2 OUT C

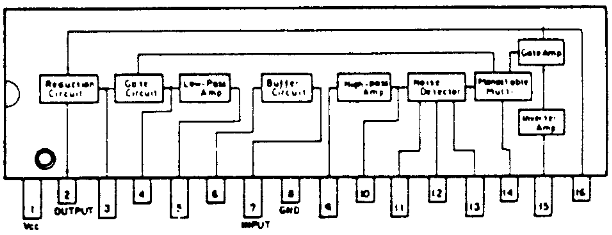
LA2220


FF
FF
FF
FF
PC
PC
57kHz∠0°
57kHz∠90°
114kHz
228kHz
6.3v
CONSTANT VOLTAGE
MUTE
LPF
LPF
AM DETECT
DRIVER
OSC STOP
REACTANCE
SW CONT
OSC
40k
10k
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

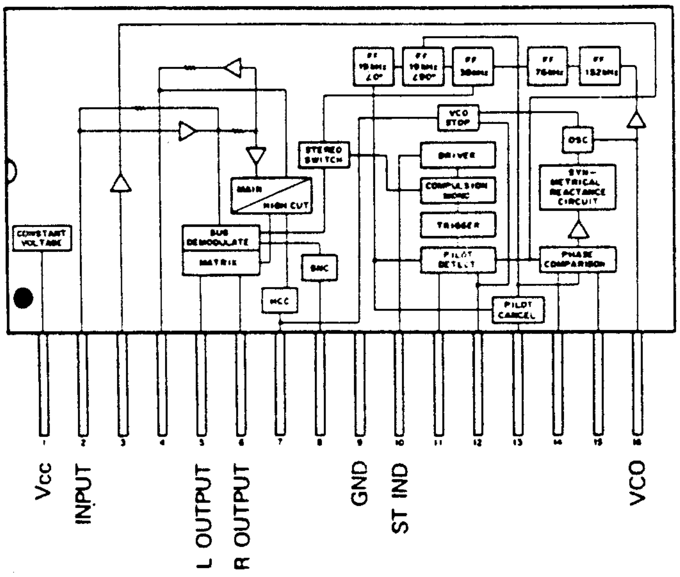
LA1140B


1st
2nd
3rd
4th
5th
6th
Quadrature Limiter
Quadrature Detector
AFC Drive
Level Detector
Level Detector
Level Detector
Inverter
Detector
DC Level Detector
AF Amp
Mute Amp
AGC Drive
Signal Meter Drive
Mute Drive
Regulated power Supply
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
IF-IN
GND
ARC
AF OUT
IF-OUT
GND
Vcc

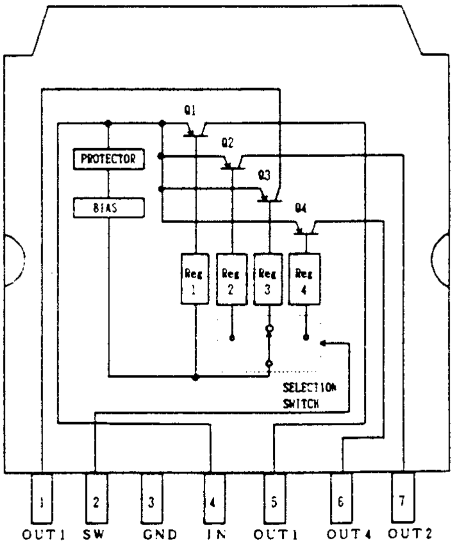
LA2110


Reduction Circuit
Gate Circuit
Low-Pass Amp
Buffer Circuit
High-pass Amp
Noise Detector
Monostable Multi-
Gate Amp
Inverter Amp
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Vcc
OUTPUT
INPUT
GND

LA3430P


FF 19kHz ∠0°
FF 19kHz ∠90°
FF 38kHz
FF 76kHz
FF 152kHz
VCO STOP
STEREO SWITCH
DRIVER
COMPULSION MONO
TRIGGER
OSC
SYMMETRICAL REACTANCE CIRCUIT
MAIN
HIGH CUT
SUB DEMODULATE
MATRIX
SNC
HCC
PILOT DETECT
PHASE COMPARISON
PILOT CANCEL
CONSTANT VOLTAGE
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Vcc
INPUT
L OUTPUT
R OUTPUT
GND
ST IND
VCO

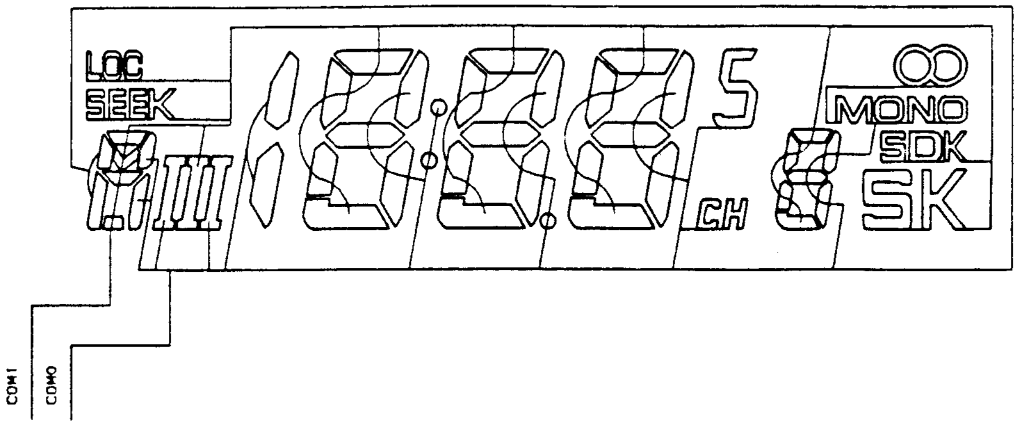
TA8214K


Q1
Q2
Q3
Q4
PROTECTOR
BIAS
Reg 1
Reg 2
Reg 3
Reg 4
SELECTION SWITCH
1
2
3
4
5
6
7
OUT1
SW
GND
IN
OUT1
OUT4
OUT2

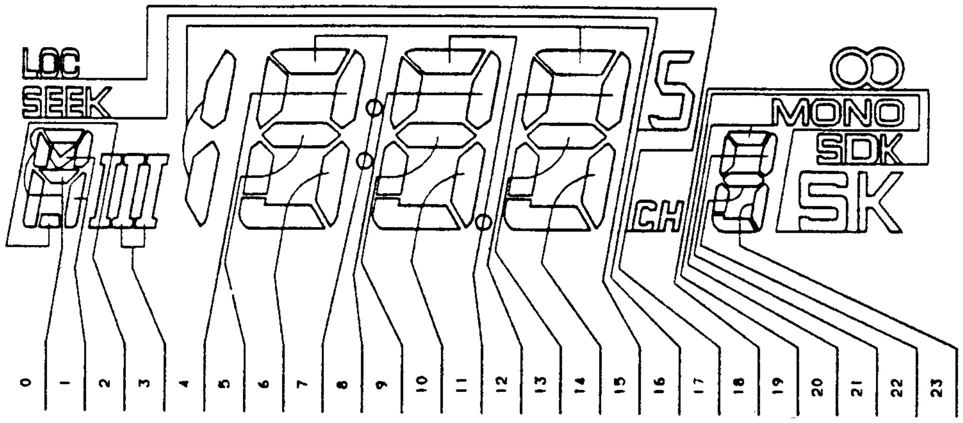
Pin No.	Pin Name	I/O	Function and Operation
17	DK IN	Input	Inputs message recognition signal (DK) sent during traffic information broadcasts only. Since the DK signal is sent by amplitude modulation of a 57 kHz subcarrier wave by 125 Hz, it counts the input signals in accordance with the program. A DK signal is judged as being preset when 125 Hz is detected twice consecutively. DK signal is judged as not being preset when 125 Hz is not detected 4 times consecutively. An interrupt operation is performed when a DK signal is judged as being present. This count is only performed in the SDK mode.
18	$\overline{\text{SK}}$	Input	Determines whether traffic information is being broadcast and inputs a broadcast detect signal (SK). Broadcast is detected when input signal is L level, and "SK" indicator is displayed. Besides being used as the SDK mode auto tuning stop signal, SK input controls the SK mode and SK alarm functions.
19	$\overline{\text{ST}}$	Input	Inputs stereo broadcast detection signal. Stereo is detected when input signal is L level, and "ST" indicator is displayed. Display is cleared when input signal is at H level. "ST" indicator is OFF during mute signal output.
20	NC	–	Not used.
21	MONO	Output CMOS Pushpull	Controlled by MONO key. L level for MONO, H level output for AUTO.
22 23	PB2 PB3	Output CMOS Pushpull	Key return signal source output terminal.
24 25	XO XI	Input CMOS	Quartz oscillator terminal connection terminal. 4.5 MHz crystal used.
26 58	VDD VDD	– –	Device power supply terminal. 5V ± 10% voltage supplied.
27	PEE	Output CMOS Pushpull	Alarm output terminal. Alarm output when $\overline{\text{SK}}$ in SDK mode remains at H level continuously for more than 30 seconds.
28 29 30 31	PL3 PL2 PL1 PL0	Output CMOS Pushpull	Key return signal source output terminal.
32 ≀ 55	LCD23 ≀ LCD0	Output CMOS Pushpull	Segment signal output terminal to LCD. LCD display performed using COM0, COM1 matrices.
56 57	COM0 COM1	Output CMOS Pushpull	Common signal terminal to LCD. GND, 1/2VDD, VDD values (5 ms interval) output at 100 Hz cycle. Segments between these terminals and LCD0~LCD23 with ±VDD potential difference are lit.
59 ≀ 62	K3 ≀ K0	Input	Key matrix input terminal.
63	TAPE	Input	Tape signal input terminal. Since this terminal is A/D (analog/digital) input, 2.461 V and above is the H level tape mode.
64	$\overline{\text{SD}}$	Input	Judges whether or not a broadcast is present during auto tuning. A broadcast is judged as being present when L level is input.

• LCD (CAW1055)

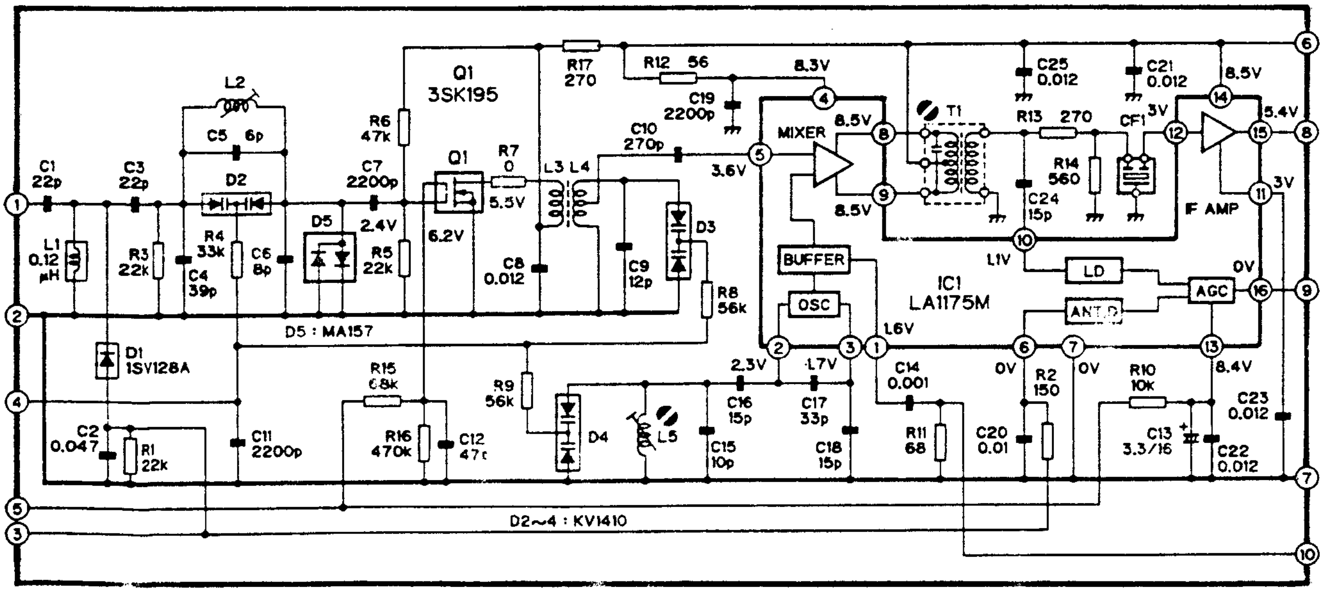
COMMON


LOC
SEEK
MONO
SDK
SK
CH
COM1
COM0

SEGMENT


LOC
SEEK
MONO
SDK
SK
CH
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23

• FM Front End (CWB1035)


Q1
3SK195
R17
270
R12 56
8.3V
C19
2200p
C25
0.012
C21
0.012
8.5V
L2
C5 6p
D2
C1
22p
C3
22p
R6
47k
Q1
R7
0
L3 L4
C10
270p
3.6V
MIXER
8.5V
T1
R13 270
CF1
3V
5.4V
R14
560
C24
15p
8.5V
IF AMP
3V
L1
0.12
μH
R3
22k
R4
33k
C4
39p
C6
8p
D5
C7
2200p
2.4V
R5
22k
5.5V
6.2V
C8
0.012
C9
12p
D3
R8
56k
BUFFER
OSC
L1V
IC1
LA1175M
LD
0V
AGC
ANT.D
D5 : MA157
1.6V
D1
1SV128A
R15
68k
R9
56k
D4
L5
2.3V
1.7V
C14
0.001
0V
R2
150
0V
R10
10k
8.4V
C23
0.012
C2
0.047
R1
22k
C11
2200p
R16
470k
C12
47p
C16
15p
C15
10p
C17
33p
C18
15p
R11
68
C20
0.01
C13
3.3/16
C22
0.012
D2~4 : KV1410
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮
⑯

Mark	No.	Part No.	Description
	95	HBA-212	Screw
	96	EBH1007	Spring
	97	EBH1006	Spring
	98	EBH1058	Spring
	99	EBF1005	Washer
	100		Arm Unit
	101	ENV1018	Gear
	102	ENV1017	Gear
	103	EBH1022	Spring
	104	EXA1005	Arm Unit
	105		Plug
	106	EBA1010	Screw
	107	BMZ20P070FMC	Screw
	108		Bracket
	109	EBH1016	Spring
	110		Lever Unit
	111	EBH1048	Spring
	112	EBH1005	Spring
	113		Lever
	114		Lever
	115		Arm
	116	WH23FMC	Washer

*)Number 92 is part of the chassis unit and cannot be removed.

20. ELECTRICAL PARTS LIST

NOTE:

- *For your parts Stock Control, the fast moving items are indicated with the marks ⌗ and ‡.*
  ⌗ : GENERALLY MOVES FASTER THAN ‡.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *The part numbers shown below indicate chip components.*
  Chip Resistor
  RS1/8S□□□J, RS1/10S□□□J
  Chip Capacitor (except for CQS.....)
  CKS....., CCS....., CSZS.....

Tuner Amp Unit

Consists of
- Mother P.C.Board
- FM P.C.Board
- Key Switch P.C.Board
- SDK P.C.Board(KE-2090SDK, KE-2030SDK)

Unit Number :
Unit Name : Tuner Amp Unit

MISCELLANEOUS

Mark	Circuit Symbol & No.	Part Name	Part No.
**	IC 51		LA1140B
**	IC 101(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)		LA2110
**	IC 151		LA3410P
**	IC 201		PA4010
**	IC 251		M51512AL
**	IC 501		PD4017B
**	IC 551		TA7211P
**	IC 801		TA8214K
**	IC 901(KE-2090SDK, KE-2030SDK)		TA75158S
**	IC 902(KE-2090SDK, KE-2030SDK)		LA2210

Mark	No.	Part No.	Description
★★	1	EXA1047	Motor Unit
	2, 3	·····	
	4, 5	·····	
	6	EBH1056	Spring
	7	CBF-166	Washer
★★	8	EXA1032	Reel Unit
	9	BMZ23P030FMC	Screw
	10	BSZ23P040FMC	Screw
	11		Bracket
	12	PMS26P025FUC	Screw
	13	ENC1013	Cassette Holder
	14	EBH1019	Spring
	15	EBA1009	Screw
	16	ELA1042	Collar
	17	ENV1032	Arm
	18	ENV1045	Arm
	19	YE12FUC	Washer
	20-22	·····	
	23	YE15FUC	Washer
	24	CBF-165	Washer
	25	EBH1049	Spring
	26		Arm
	27	EBH1060	Spring
	28	EBH1066	Spring
	29	ENC1046	Arm
	30	ENC1059	Arm
	31	·····	
	32		Arm
	33	EBH1050	Spring
	34		Arm Unit
	35	CBG1001	Washer
	36	HBF-179	Washer
	37	ENV1029	Flywheel(N)
	38	ENV1030	Flywheel(R)
★★	39	ENT1003	Belt
	40	ELA1051	Roller
	41	EXA1025	Cassette Frame Unit
	42	PMS20P040FMC	Screw
	43	ENV1016	Tape Guide
	44	EBH1020	Spring
	45		Lever
	46		Arm
	47	EBH1040	Spring
	48	EBH1041	Spring
	49	EBH1021	Spring

Mark	No.	Part No.	Description
	50		Lever
	51	EBE1001	Washer
	52	EBH1009	Spring
★★	53	ENT1006	Belt
	54	ENV1034	Gear
	55	CBF-135	Washer
	56	ENV1037	Gear
	57		Cover
	58	EBA1013	Screw
	59	BMZ20P050FMC	Screw
★★	60	EPB1001	Head
	61	EBH1065	Spring
	62	ENP1003	P. C. Board
	63		Arm
	64	EXA1027	Head Base Unit
	65	EBH1004	Spring
	66	EBH1003	Spring
	67	CNV1667	Cushion
	68	YE20FUC	Washer
★★	69	EXA1002	Roller Unit
	70		Chassis Unit
	71	EBF1004	Washer
	72	ENV1009	Pulley
	73		Lever
	74	EBH1025	Spring
	75	EBL1001	Spring
	76	ENV1010	Pulley
	77		Arm
	78	HBA-147	Screw
	79	ENV1035	Gear
	80	ELA1018	Collar
	81		Arm
	82		Plug
	83	ENV1011	Gear
	84		Arm
	85	EBH1024	Spring
	86	ENC1024	Ratchet
	87	EBH1018	Spring
	88	EXA1003	Roller Unit
	89		Arm
	90		Lever
	91	EBH1013	Spring
	92	*	
	93	ENV1043	Gear
	94	ELA1032	Collar

• Removing the Tuner Amp Unit

1. Remove the four screws.
2. Unbend the tabs at six locations indicated by arrows until straight.
3. Raise up on tuner amp unit to remove it from the chassis unit.

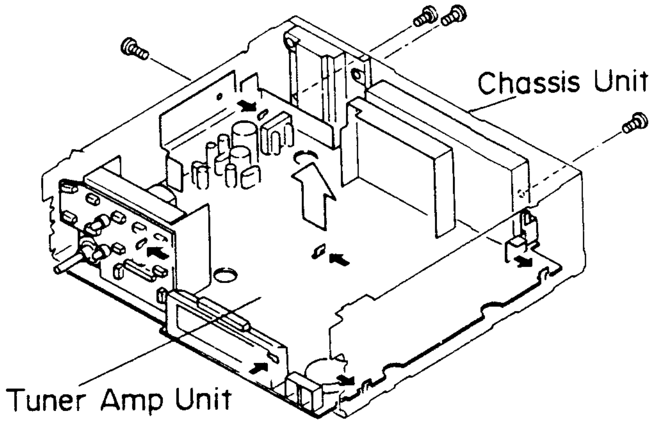

Chassis Unit
Tuner Amp Unit

Fig. 6

• Removing the FM P. C. Board

1. Remove the solder and unbend the tabs on back of the FM p. c. board until straight.
2. Remove the solder (11 points) from the mother p. c. board.
3. Pull out the FM p. c. board as shown in illustration.

• Removing the SDK P. C. Board (KE-2090SDK, KE-2030SDK)

1. Remove the solder and unbend the tabs on back of the SDK p. c. board until straight.
2. Remove the solder (10 points) from the mother p. c. board.
3. Pull out the SDK p.c. board as shown in illustration.

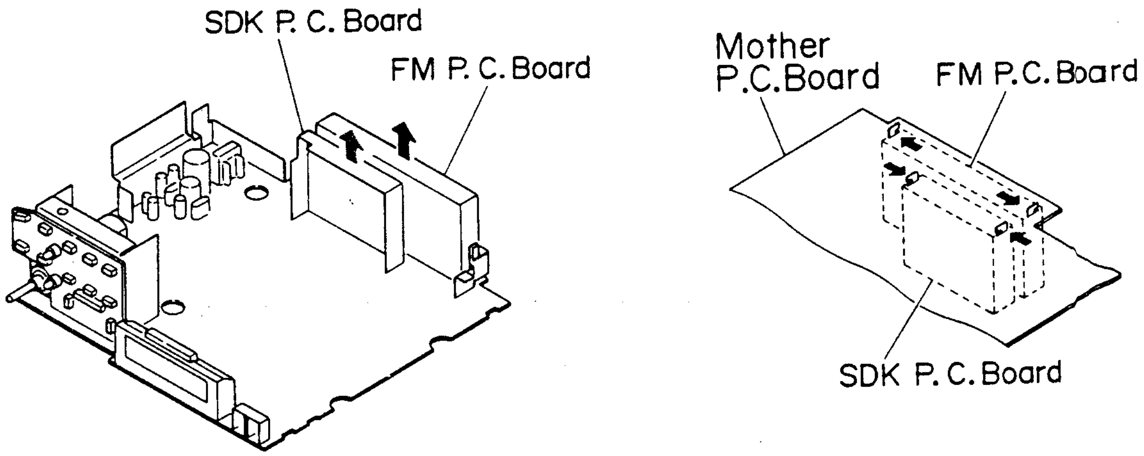
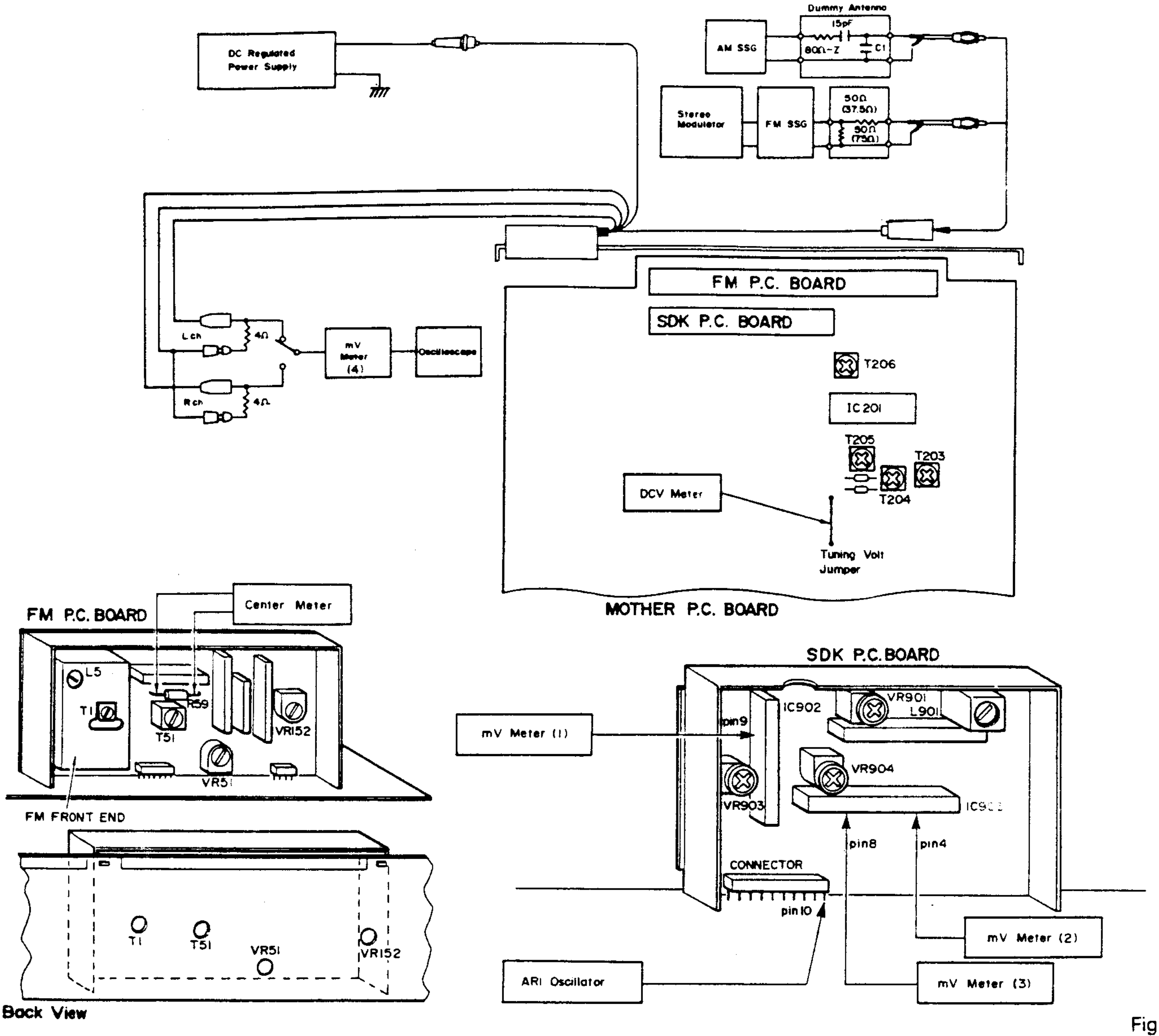

SDK P. C. Board
FM P. C. Board
Mother P.C.Board
FM P.C. Board
SDK P. C. Board

Fig. 7

7. ADJUSTMENT

• Connection Diagram

Notice:
Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.
Z:Output impedance of the SSG.



Dummy Antenna
15pF
80Ω-Z
C1
AM SSG
Stereo Modulator
FM SSG
50Ω (37.5Ω)
50Ω (75Ω)
DC Regulated Power Supply
Lch
Rch
4Ω
4Ω
mV Meter (4)
Oscilloscope
FM P.C. BOARD
SDK P.C. BOARD
T206
IC201
T205
T203
T204
DCV Meter
Tuning Volt Jumper
MOTHER P.C. BOARD
Center Meter
FM P.C. BOARD
L5
T1
R59
T51
VR152
VR51
FM FRONT END
T1
T51
VR51
VR152
Back View
SDK P.C. BOARD
mV Meter (1)
pin9
IC902
VR901
L901
VR904
VR903
pin8
pin4
CONNECTOR
pin10
mV Meter (2)
mV Meter (3)
ARI Oscillator

Fig. 8

MW/LW ADJUSTMENT (KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)

	No.	AM SSG (400Hz, 30%)		Displayed Frequency (kHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (kHz)	Level (dBμV)			
Tuning volt	1			1,602	T203	DC V Meter:Less than 6.0V
	2			153	——	Verify that DC V Meter more than 2.0V.
IF	1	999	20－25	999	T204, T205, T206	mV Meter(4):Maximum

6. DISASSEMBLY

• Removing the Case Assy

1. Insert and turn a flat screwdriver to remove the case.
2. Raise the case to remove.

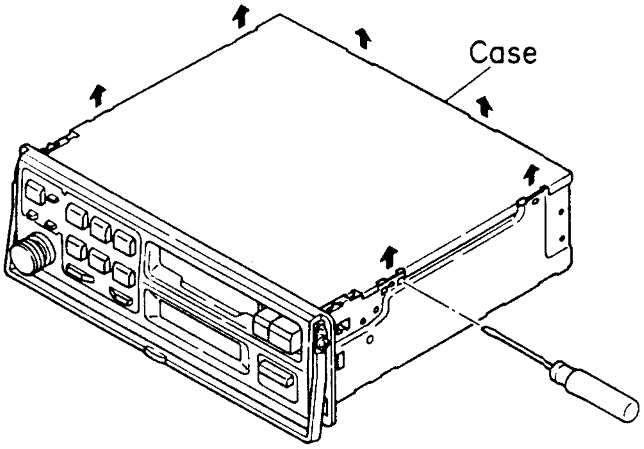


Fig. 3

• Removing the Grille Assy

1. Remove the two knobs (KE-2090SDK, KE-2090B)
   Remove the knob (KE-2030SDK, KE-2030B, KE-2020)
2. Remove the screw A and remove the grille assy.
3. Remove the two screws B and remove the handle (KE-2090SDK, KE-2090B, KE-2030B)

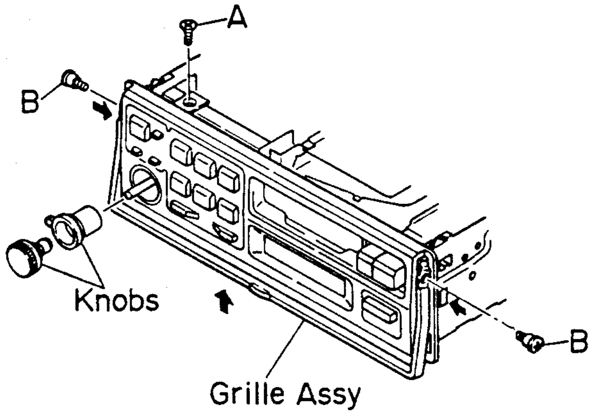


Fig. 4

• Removing the Cassette Mechanism Assy

1. Disconnect the two connectors.
2. Remove the four screws, and then remove the cassette mechanism assy.

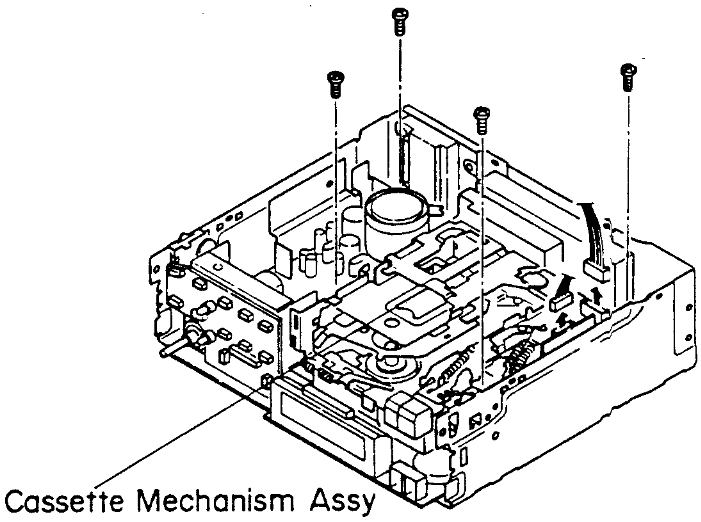


Fig. 5

- **Auto-Loudness**

When playing back a tape or listening to the radio at low volume, the low tone is automatically emphasized.

Seek Tuning

Press the left and right tuning buttons simultaneously, and tuning to the next higher or lower broadcast on the band can be accomplished automatically by simply pressing either the right or left side of the tuning button. FM frequencies change in 50 kHz steps while those in the MW and LW bands change in 9 kHz steps.

Preset Scan Tuning

Pressing the preset scan button (CH indicator flashes) causes previously stored frequencies to be tuned in sequentially for eight seconds each. Press again when the desired frequency is tuned in to cancel preset scan tuning.

Preset Tuning

Pressing the preset button instantly tunes in the frequency programmed in the memory for that button.

Manual Tuning

When manual tuning is employed, FM frequencies change in 50 kHz steps, LW frequencies change in 1 kHz steps, and MW frequencies change in 9 kHz steps.

1. Press the left and right tuning buttons simultaneously and the seek tuning indicator will disappear from the display.
2. Change the frequency by pressing either the left or right side of the tuning button. Pressing the button once will change the frequency one step (see above). Continuously depressing either side of the button will successively change the frequency at the prescribed step.

- **Note on LW Band Seek Tuning**

The following shows changes in LW BAND broadcast frequency steps enacted by WARC/1979. The underlined italic figures indicate changes.

A. Up to January 1986
155-164-173-182-191-200-209-218-227-236-245-254-263-272-281

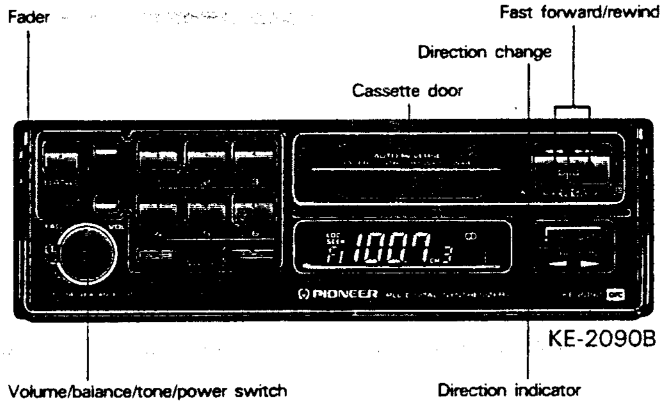
B. From February 1986
153-162-171-180-189-200-209-218-227-236-245-254-263-272-281

C. From February 1988
153-162-171-180-189-*198-207-216-225-234*-245-254-263-272-281

D. From February 1990
153-162-171-180-189-198-207-216-225-234-*243-252-261-270-279*

The LW BAND SEEK operations of this unit are performed in 9 kHz steps starting from 155 kHz. In the case of C, the change results in the first ten frequencies being shifted (2 kHz each) from A, while the remaining five are identical to those of A. Consequently, manual tuning (in 1 kHz steps) and seek tuning should be used together to tune in the desired LW broadcast. It is also suggested that your favorite LW stations will be memorized for instant recall.

5. USING THE TAPE DECK



1. Turning the power switch to the right causes power to switch ON.
2. Loading a cassette tape into the load slot causes playback to begin automatically.
3. Adjust the volume and balance. To adjust the balance, first pull the knob until a click is heard. After setting to the desired level, push the knob in again to its original position.
4. To adjust the tone, turn the volume knob while pressing it.
5. When tape playback reaches the end of the tape, playback will automatically switch from the side being played to the opposite side (ie. Side A to Side B or vice versa) (Auto-reverse). To eject the tape during playback, simultaneously press the fast forward and rewind buttons.

- A loose or warped label on a cassette tape may interfere with the eject mechanism of the unit or cause the cassette to become jammed in the unit. Avoid using such tapes or remove such labels from the cassette before attempting use.
- Do not try to eject the cassette immediately after insertion, as it will cause malfunction. Wait a few seconds.
- Be sure to eject the tape when the vehicle's ignition is turned OFF. Leaving the tape in the unit can deform the pinch roller causing wow and flutter during tape playback.

- **Fast Forward/Rewind**

Since the transport can be in either direction, both the left and right high-speed tape transport buttons can be regarded as fast forward/rewind buttons.

For fast forward, press the high-speed tape transport button that corresponds to the direction that is shown by the direction indicator. When the end of the tape is reached, playback will automatically begin from the opposite side of the tape (Auto-reverse).

For rewind, press the button that is opposite that of the direction shown by the direction indicator. When the end of the tape is reached, playback will automatically begin from the beginning of the same side of the tape (Auto-replay).

Fast forward and rewind can be terminated by pressing the respective opposite high-speed tape transport button.

- **Direction Change Button**

This button is used to switch from one side of the tape to the other (from Side A to Side B or vice versa).

3. SWITCHING THE TUNING STEPS (KE-2020)

• Tuning Step Switch

The tuning step switch is located on the bottom of the unit and is set at shipment from the factory as shown in Fig. 1. The setting of this switch should be changed to that shown in Fig. 2 for use in North America, Central America, or South America.

- Be sure to disconnect the ⊖ terminal connector from the car battery to prevent short circuits.

Specification		Initial Setting	New Setting
AM	Tuning steps	9 kHz steps	10 kHz steps
	Frequency range	531 – 1,602 kHz	530 – 1,620 kHz

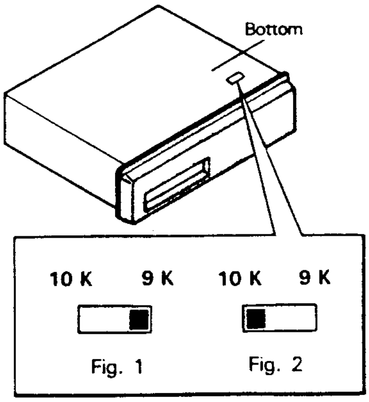
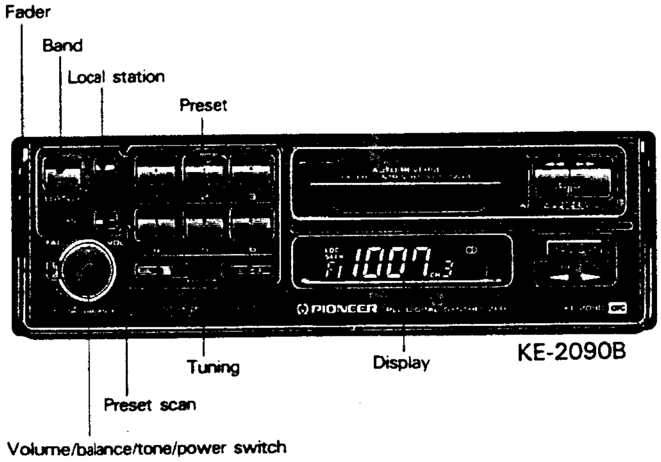
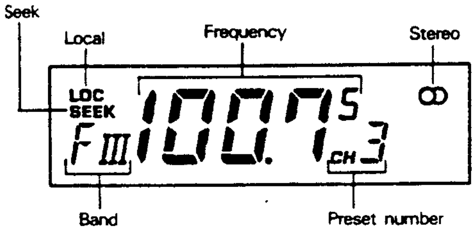


Fig. 1 Fig. 2

4. USING THE RADIO



KE-2090B



1. Turning the power switch to the right causes power to switch ON and the current frequency to appear on the display.
- Since the set is designed preferentially for tape play, eject a cassette tape, if mounted, before operating the radio.
2. Press the band switch to select the band.
- Switching between FM and MW/LW is controlled by the band switch. Switching between LW and MW is accomplished using the tuning button. The MW band is from 531 kHz to 1,602 kHz, and the LW band is from 153 kHz to 281 kHz.
3. Press the left and right tuning buttons simultaneously and the seek tuning indicator will appear on the display.
4. Press either the left or right side of the tuning button to tune in the desired frequency. (Pressing the right side will increase the frequency.)
5. Adjust the volume and balance. To adjust the balance, first pull the knob until a click is heard. After setting to the desired level, push the knob in again to its original position.
6. To adjust the tone, turn the volume knob while pressing it.

• To enter a frequency into the preset memory...

7. Hold down one of the preset buttons (1 – 6) for approximately two seconds. The frequency is stored in memory (assigned to the preset button pressed) once the preset number stops flashing on the display.
   Six FM1 frequencies, six FM2 frequencies, six FM3 frequencies and six MW and LW frequencies can be entered.

• Local Station Switch

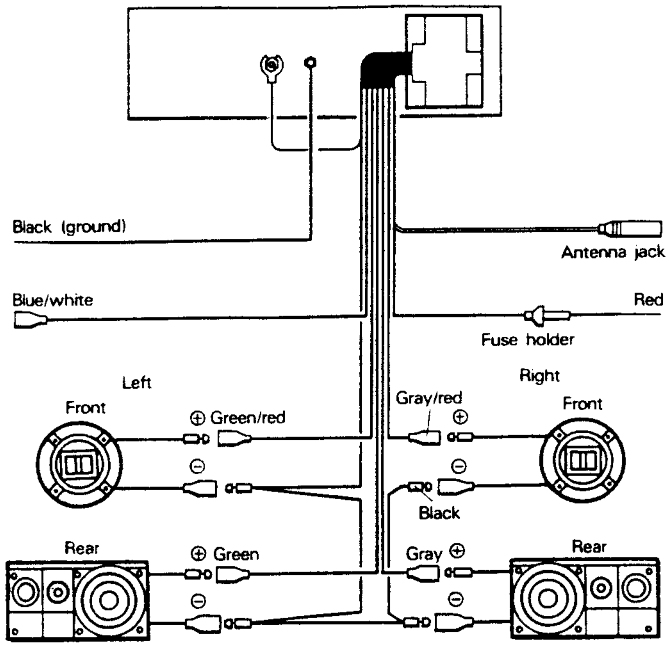
Pressing this switch lowers the seek tuning reception sensitivity so that only stronger signals can be tuned in. This feature is convenient when driving through areas that have numerous radio stations. When this switch is depressed, the local indicator will be illuminated on the display.

• Fader Control

This control is used to adjust the balance between the front and rear speakers when using a 4-speaker system. Turning the control upwards decreases the volume of the rear speakers, while turning it downwards decreases the volume of the front speakers. With 2-speaker systems, set this control to a horizontal position.

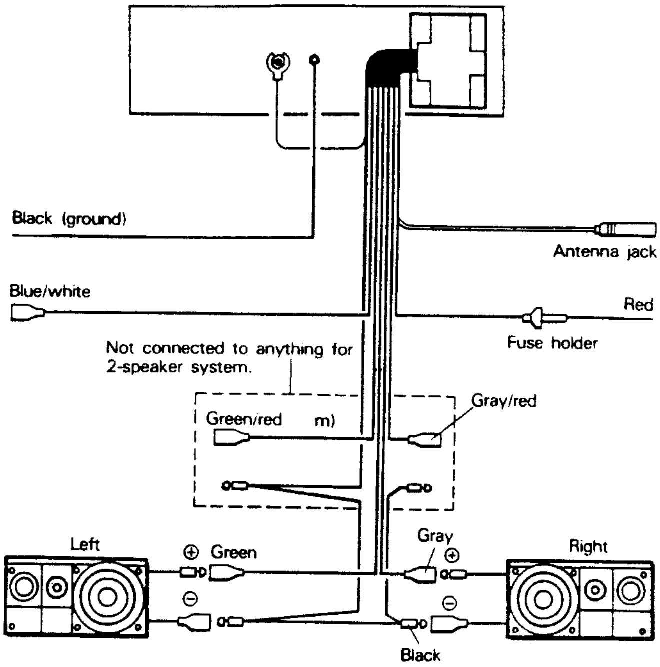
KE-2090SDK, KE2090B

4-speaker system

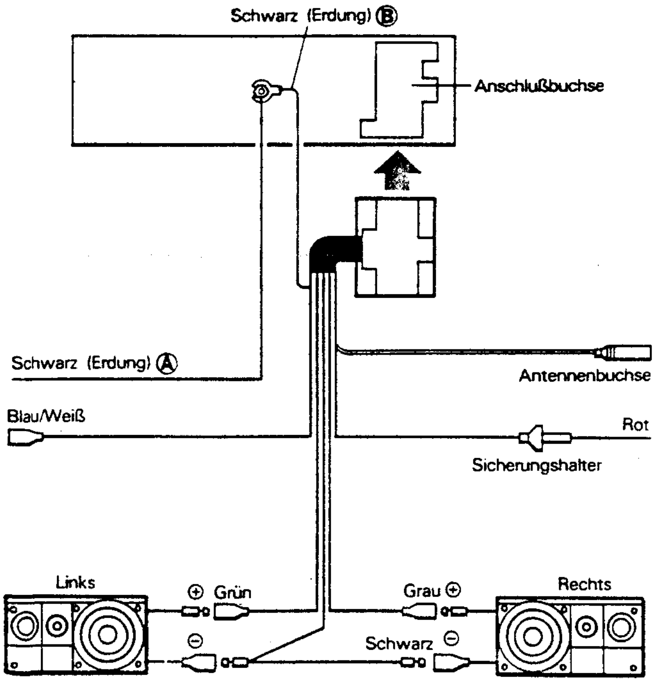

Black (ground)
Antenna jack
Blue/white
Red
Fuse holder
Left
Front
⊕ Green/red
⊖
Right
Gray/red
⊕
Front
⊖
Black
Rear
⊕ Green
⊖
Gray ⊕
Rear
⊖

KE-2090SDK, KE-2090B

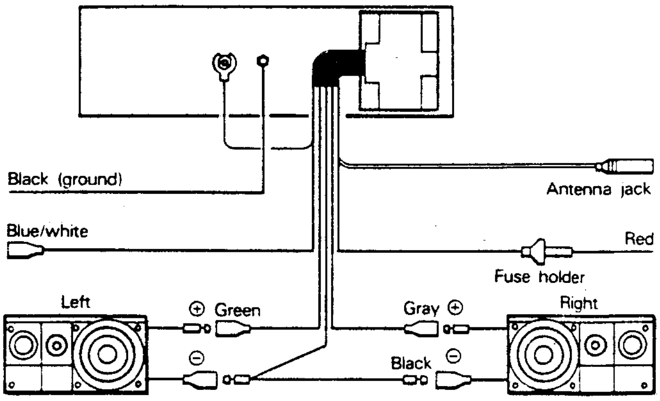
2-speaker system


Black (ground)
Antenna jack
Blue/white
Red
Fuse holder
Not connected to anything for 2-speaker system.
Green/red m)
Gray/red
Left
⊕ Green
⊖
Gray
⊕
Right
⊖
Black

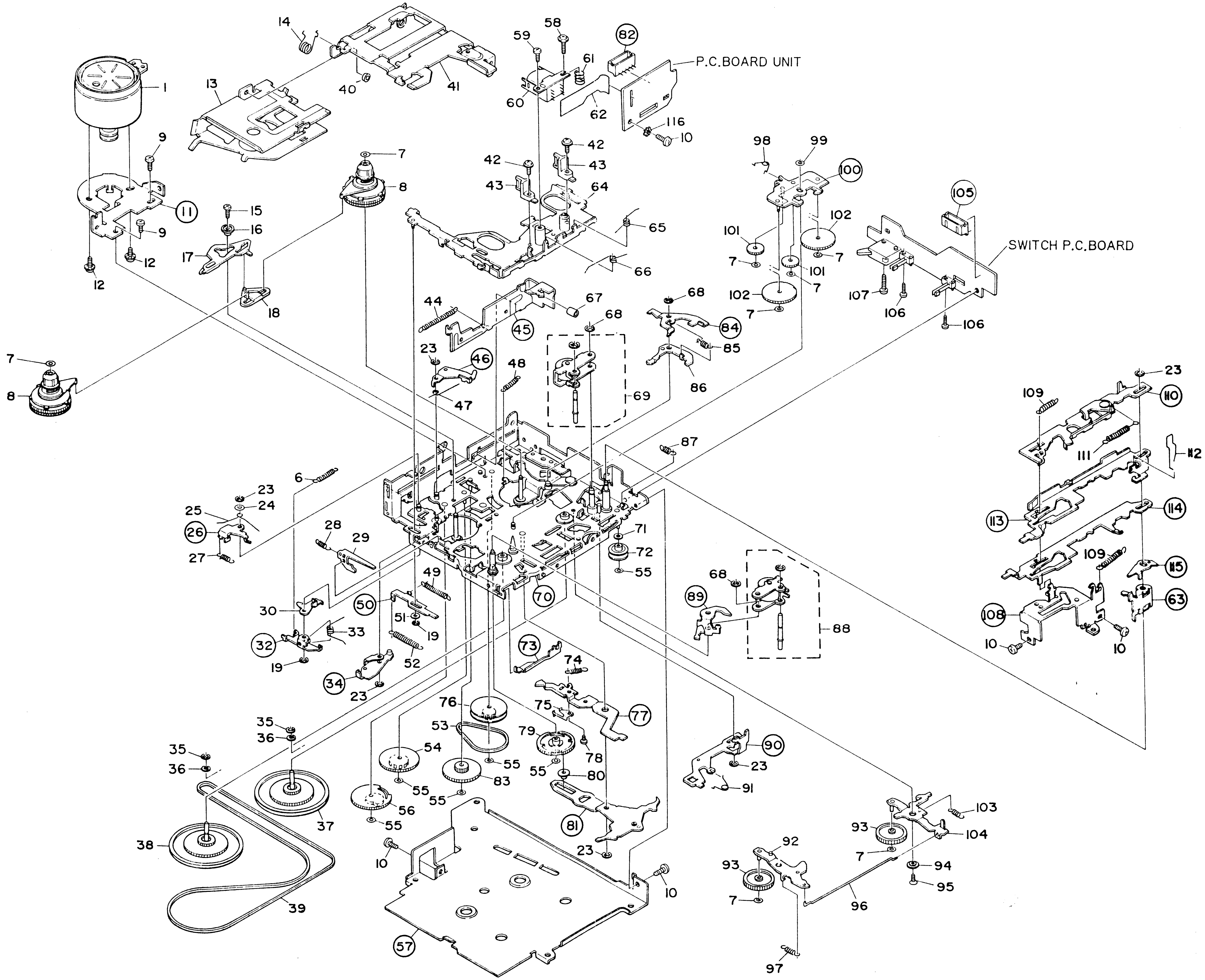
KE2030SDK


Schwarz (Erdung) Ⓑ
Anschlußbuchse
Schwarz (Erdung) Ⓐ
Antennenbuchse
Blau/Weiß
Rot
Sicherungshalter
Links
⊕ Grün
⊖
Grau ⊕
Rechts
Schwarz ⊖

KE-2030B


Black (ground)
Antenna jack
Blue/white
Red
Fuse holder
Left
⊕ Green
⊖
Gray ⊕
Right
Black ⊖

19. CASSETTE MECHANISM ASSY EXPLODED VIEW


1
2
3
4
5
6
A
B
C
D
14
13
40
41
59
58
82
61
60
62
P.C.BOARD UNIT
116
10
1
9
11
9
12
12
7
8
15
16
17
18
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43
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66
98
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100
101
102
7
101
7
102
7
105
SWITCH P.C.BOARD
107
106
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97

Fig. 20

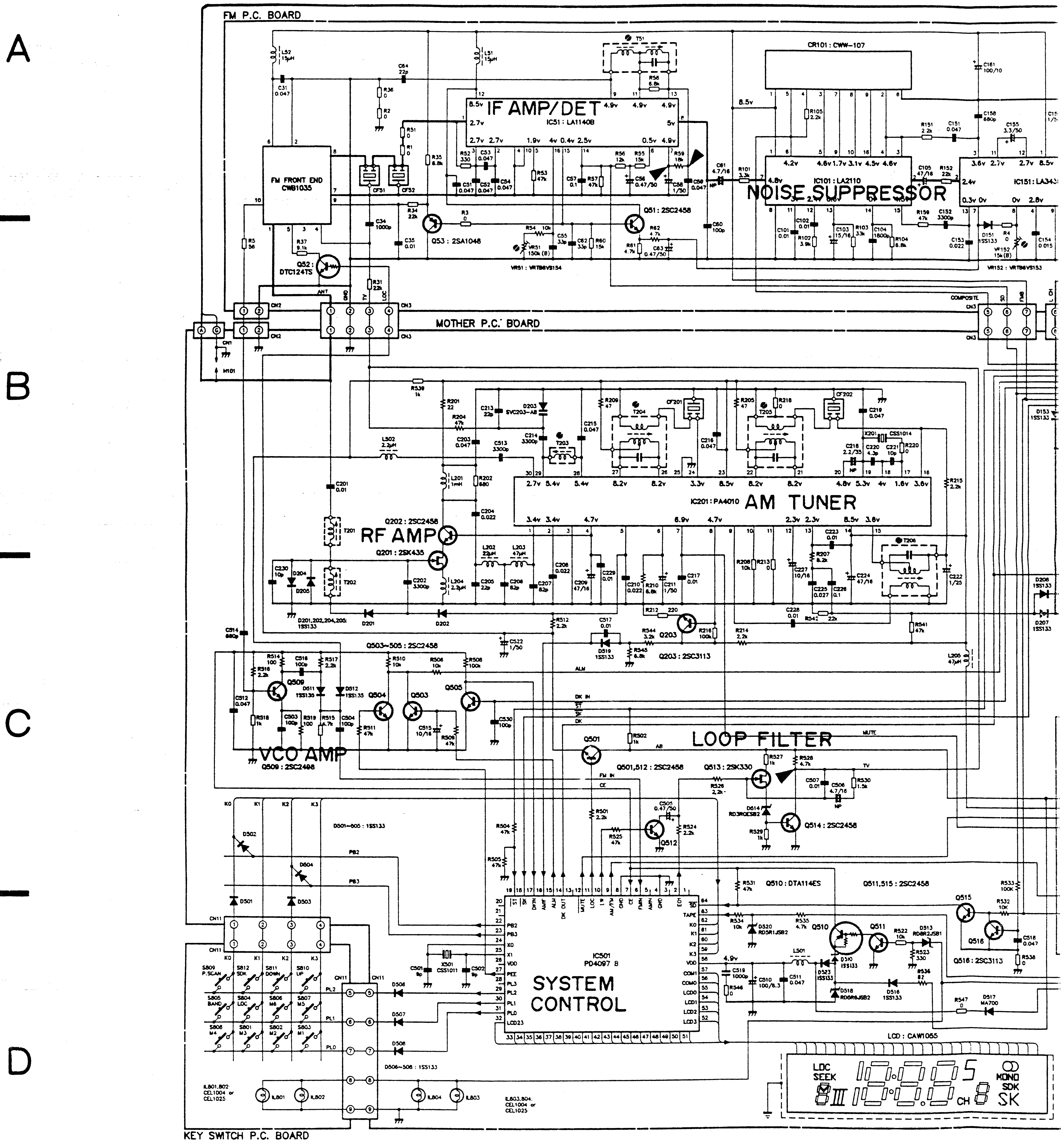
- **Parts List**

NOTE:

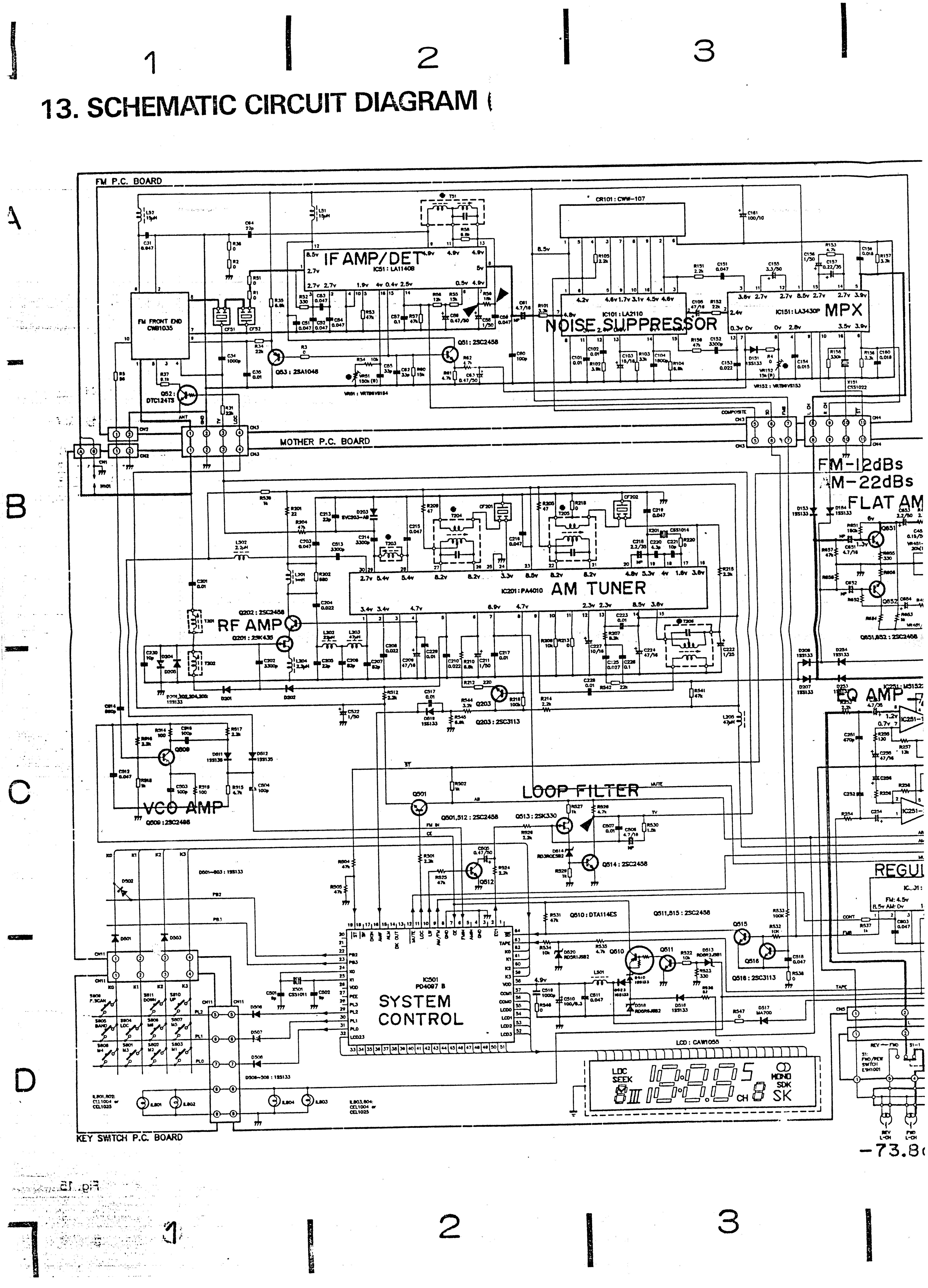
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★.*
  ★ ★: GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

Mark	No.	Part No.	Description
	1	CNC1484	Holder (KE-2030SDK, KE-2020)
	2	BMZ20P040FMC	Screw
	3	CMZ26P050FMC	Screw
	4	CNB1283	Box(KE-2090SDK, KE-2090B, KE-2030B)
	5	CXA2817	Grille Assy(KE-2090SDK)
		CXA2816	Grille Assy(KE-2090B)
		CXA2813	Grille Assy(KE-2030SDK)
		CXA2811	Grille Assy(KE-2030B)
		CXA2956	Grille Assy(KE-2020)
	6	CBH1210	Spring
	7	CAT1212	Door(KE-2090SDK, KE-2090B)
		CAT1195	Door(KE-2030SDK, KE-2030B)
		CAT1203	Door(KE-2020)
	8		Spacer (KE-2090SDK, KE-2030SDK)
★	9	CAC2082	Button(SDK) (KE-2090SDK, KE-2030SDK)
★	10	CAA1185	Knob(KE-2030SDK, KE-2030B, KE-2020)
	11		Holder
	12	CNM1642	Spacer
★★	13	CEL1004 (CEL1025)	Lamp
	14		Terminal
	15		Spacer
	16	BMZ30P060FMC	Screw
★★	17	TA8214K	IC
★★	18	TA7281P	IC
★★	19	CCS1136	Volume (KE-2090SDK, KE-2090B)
★★		CCS1134	Volume(KE-2030SDK, KE-2030B, KE-2020)
	20		Holder
	21	CAW1055	LCD
	22		Spacer
	23	CNV2152	Lens
	24		Insulator (KE-2090SDK, KE-2030SDK)
	25		Plug (KE-2090SDK, KE-2030SDK)
	26		Holder (KE-2090SDK, KE-2030SDK)
	27		Connector
	28		Connector
	29		Insulator
	30		Shield
	31	CXK1006	Antenna Jack(KE-2020)
◉	32	CWM1944	Tuner Amp Unit (KE-2090SDK)
◉		CWM1943	Tuner Amp Unit(KE-2090B)
◉		CWM1938	Tuner Amp Unit (KE-2030SDK)
◉		CWM1937	Tuner Amp Unit(KE-2030B)
◉		CWM1939	Tuner Amp Unit(KE-2020)
	33		Case
	34		Holder
	35		Plug
	36		Plug
	37	CWB1035	FM Front End
	38	CKS-467	Plug(KE-2020)
	39		Holder(KE-2020)
	40	BMZ26P050FMC	Screw
◉	41	EXK1140	Cassette Mechanism Assy
★	42	CAC1715	Button
★	43	CAC1714	Button
	44		Chassis Unit(KE-2020)
	45	CDE2371	Cord(KE-2020)
	46	CNS1472	Cap(KE-2020)
	47	RS1/2P102JL	Resistor(KE-2020)
	48	CBA1073	Screw(KE-2090SDK, KE-2090B, KE-2030B)
	49	CDE2380	Cord(KE-2090SDK, KE-2090B)
		CDE2391	Cord(KE-2030SDK)
		CDE2497	Cord(KE-2030B)
	50	BMZ40P060FMC	Screw(KE-2090SDK, KE-2090B, KE-2030B)
	51		Clamper(KE-2090SDK, KE-2090B, KE-2030B)
	52	BMZ30P040FMC	Screw(KE-2090SDK, KE-2090B, KE-2030B)
★	53	CAA1191	Knob(KE-2090SDK, KE-2090B)
★	54	CAA1192	Knob(KE-2090SDK, KE-2090B)
	55	CBA1074	Screw(KE-2090SDK, KE-2090B, KE-2030B)
	56	CBH1261	Spring
★	57	CAC2094	Button
	58	CNC1379	Handle(KE-2090SDK, KE-2090B, KE-2030B)
	59		Holder(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)
	60	CDE2381	Connector (KE-2090SDK, KE-2090B)
		CDE2392	Connector (KE-2030SDK, KE-2030B)
	61	BMZ30P060FMC	Screw(KE-2090SDK,KE-2090B KE-2030SDK, KE-2030B)
	62		Chassis Unit(KE-2090SDK)
			Chassis Unit (KE-2090B, KE-2030B)
			Chassis Unit(KE-2030SDK)
	63	BMZ30P060FMC	Screw(KE-2020)
	64		Connector
	65	CEX1008	Battery (KE-2090SDK, E-2090B, KE-2030SDK, KE-2030B)
	66	CNV2182	Holder
★	67	MAA4371F-R	LED
	68		Holder(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)
	69		Cushion(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)

8. SCHEMATIC CIRCUIT DIAGRAM (KE-2090SDK)


A
B
C
D
FM P.C. BOARD
IF AMP/DET
IC51 : LA1140B
FM FRONT END CWB1035
Q53 : 2SA1048
Q51 : 2SC2458
Q52 : DTC124TS
VR51 : VRTB6VS154
CR101 : CWW-107
IC101 : LA2110
NOISE SUPPRESSOR
IC151 : LA343
VR152 : VRTB6VS153
MOTHER P.C. BOARD
ANT
GND
TV
LOC
CN1
CN2
CN3
H101
COMPOSITE
AM TUNER
IC201 : PA4010
RF AMP
Q202 : 2SC2458
Q201 : 2SK435
D201,202,204,205: 1SS133
Q203 : 2SC3113
Q503~505 : 2SC2458
VCO AMP
Q509 : 2SC2458
LOOP FILTER
Q501,512 : 2SC2458
Q513 : 2SK330
Q514 : 2SC2458
D501~505 : 1SS133
Q510 : DTA114ES
Q511,515 : 2SC2458
Q516 : 2SC3113
IC501 PD4097 B
SYSTEM CONTROL
X501 CSS1011
D506~508 : 1SS133
LCD : CAW1055
LOC
SEEK
MONO
SDK
SK
CH
S809 P.SCAN
S812 SDK
S811 DOWN
S810 UP
S805 BAND
S804 LOC
S806 M6
S807 M5
S808 M4
S801 M3
S802 M2
S803 M1
IL801,802 CEL1004 or CEL1025
IL803,804 CEL1004 or CEL1025
KEY SWITCH P.C. BOARD

13. SCHEMATIC CIRCUIT DIAGRAM (


1
2
3
A
B
C
D
FM P.C. BOARD
IF AMP/DET
IC51 : LA1140B
FM FRONT END
CWB1035
Q53 : 2SA1048
Q51 : 2SC2458
Q52 : DTC124TS
VR51 : VRTB6VS154
CR101 : CWW-107
NOISE SUPPRESSOR
IC101 : LA2110
MPX
IC151 : LA3430P
VR152 : VRTB6VS153
X151 CSS1022
COMPOSITE
MOTHER P.C. BOARD
FM-12dBs
AM-22dBs
FLAT AM
Q651,652 : 2SC2458
AM TUNER
IC201 : PA4010
RF AMP
Q202 : 2SC2458
Q201 : 2SK435
Q203 : 2SC3113
EQ AMP
IC251 : M5152
VCO AMP
Q609 : 2SC2458
LOOP FILTER
Q501
Q501,512 : 2SC2458
Q513 : 2SK330
Q514 : 2SC2458
REGUL
D501–503 : 1SS133
Q510 : DTA114ES
Q511,515 : 2SC2458
Q516 : 2SC3113
IC501
PD4097 B
SYSTEM
CONTROL
LCD : CAW1056
LOC
SEEK
MONO
SDK
CH
SK
S806 F.SCAN
S811 DOWN
S810 UP
S805 BAND
S804 LOC
S808 M6
S809 M5
S806 M4
S801 M3
S807 M2
S803 M1
D506–508 : 1SS133
IL801,802: CEL1004 or CEL1025
IL803,804: CEL1004 or CEL1025
S1: FWD/REW SWITCH
KEY SWITCH P.C. BOARD
REV L-CH
FWD L-CH
-73.8

Tuner Amp Unit

Consists of
- Mother P.C. Board
- FM P.C. Board
- Key Switch P.C. Board

NOTE:
—▭— Indicates a chip resistor.
—▮— Indicates a chip capacitor.

SWITCHES:
⦿MOTHER P.C. BOARD
S801: POWER SWITCH················ON–OFF
⦿P.C. BOARD UNIT
S1: FWD/REV SWITCH··············FWD–REV
⦿SWITCH P.C. BOARD
S1: MUTE SWITCH······ON(EJECT)–OFF(PLAY)
S2: MOTOR SWITCH··················ON–OFF
S3: TAPE/TUNER SWITCH·········TAPE–TUNER
The underlined indicates the switch position.

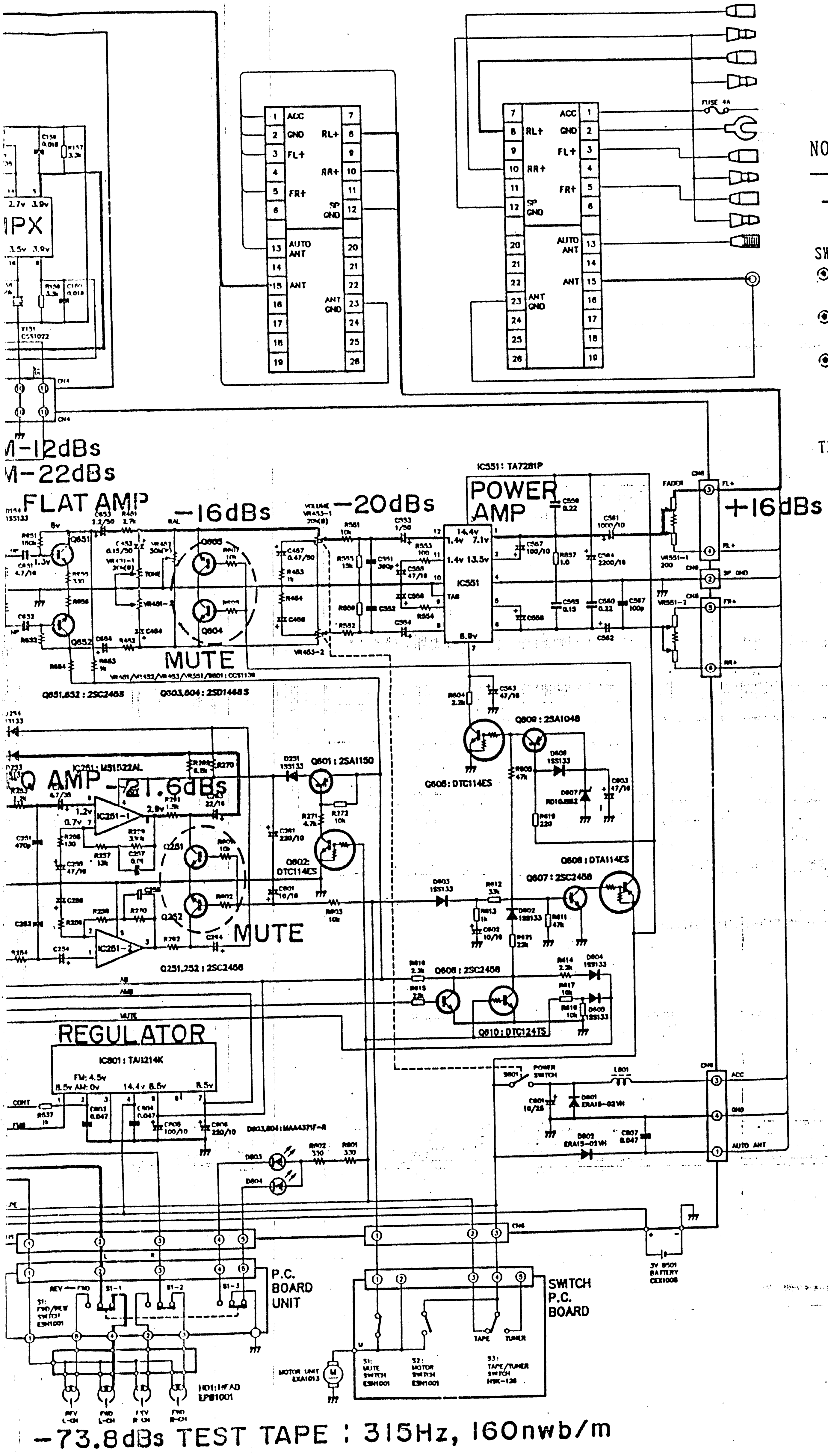
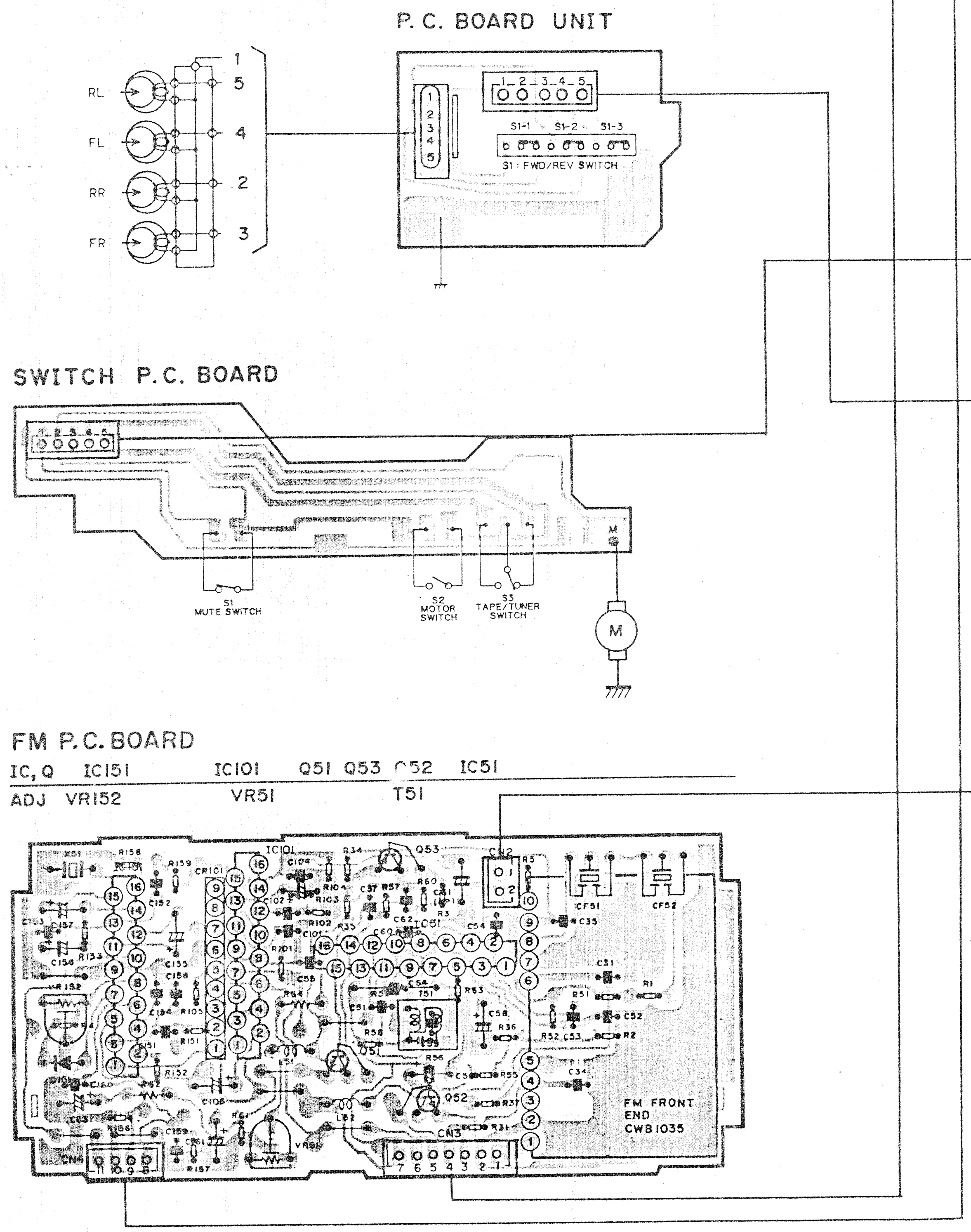
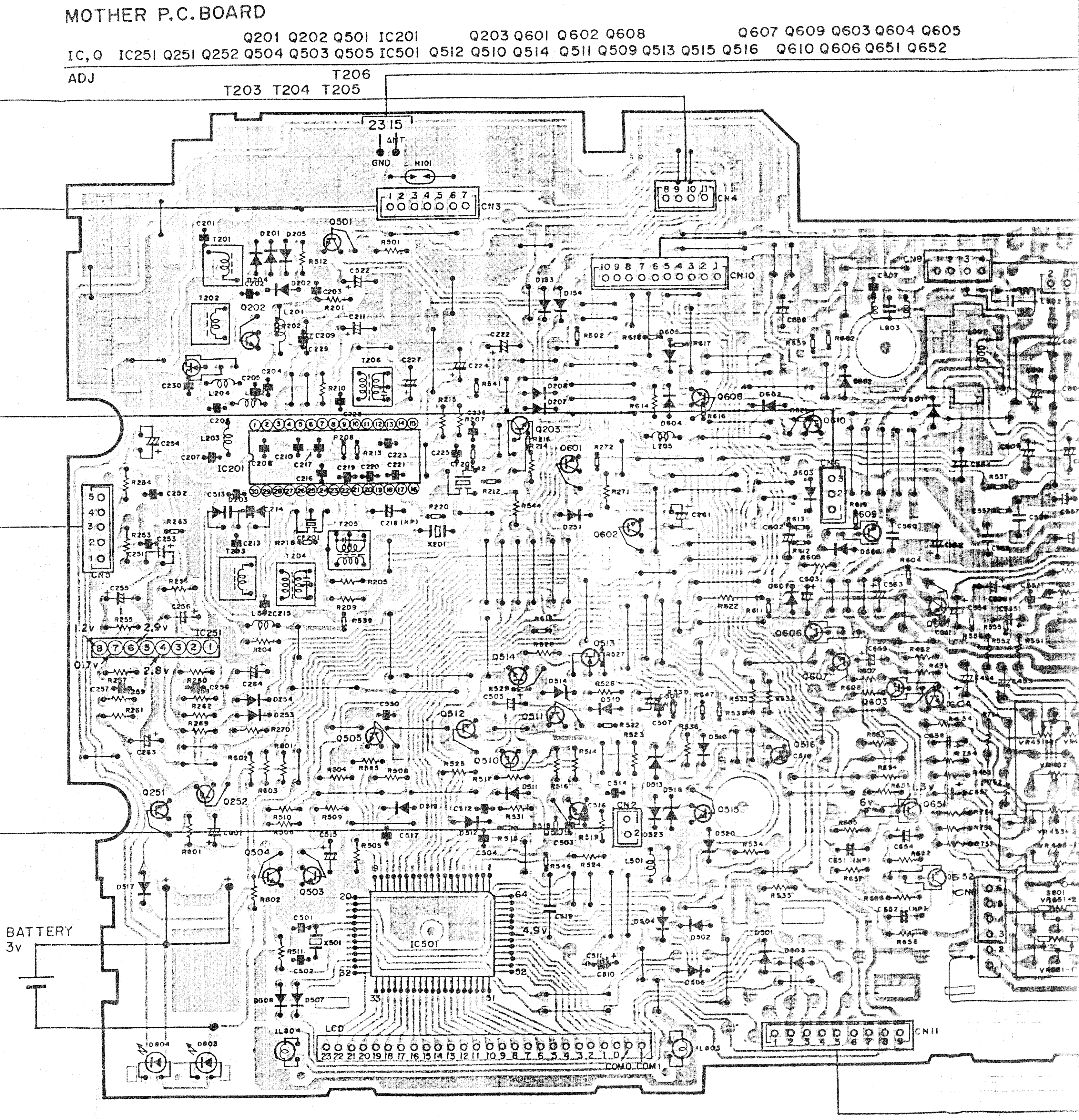

-12dBs
-22dBs
FLAT AMP
-16dBs
-20dBs
POWER AMP
IC551: TA7281P
+16dBs
MUTE
Q651,652 : 2SC2458
Q603,604 : 2SD1468S
Q AMP
IC251: M51522AL
-21.6dBs
MUTE
Q251,252 : 2SC2458
Q601 : 2SA1150
Q602: DTC114ES
Q605: DTC114ES
Q609 : 2SA1048
Q607 : 2SC2458
Q608 : DTA114ES
Q606 : 2SC2458
Q610 : DTC124TS
REGULATOR
IC801 : TA7L214K
D803,804 : MAA4371F-R
POWER SWITCH
D801 ERA15-02VH
D802 ERA15-02VH
ACC
GND
AUTO ANT
FUSE 4A
FL+
FL-
SP GND
FR+
FR-
RL+
RR+
AUTO ANT
ANT
ANT GND
P.C. BOARD UNIT
S1: FWD/REV SWITCH ESN1001
SWITCH P.C. BOARD
S1: MUTE SWITCH ESN1001
S2: MOTOR SWITCH ESN1001
S3: TAPE/TUNER SWITCH HSK-128
MOTOR UNIT EXA1013
HD1: HEAD EPB1001
3V B501 BATTERY CEX1008
-73.8dBs TEST TAPE : 315Hz, 160nwb/m

Fig. 14

9. CONNECTION DIAGRAM (KE-2090SDK)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
IC51	2.7	2.7	2.7	0	1.9	0.5	4.9	5.0	4.9	0	4.9	8.5	4.9	2.5	0.4	4.0														
IC101	/	/	4.6	4.6	4.6	4.2	4.8	0	1.7	3.1	3.0	2.4	0.6	0	4.5	4.5														
IC151	8.5	2.4	3.6	2.8	3.9	3.9	0	0	0	/	2.7	2.7	0.3	2.7	2.7	3.5														
IC201	3.4	3.4	0	4.7	/	/	6.9	4.7	/	/	/	2.3	2.3	8.5	3.6	3.6	1.6	4.0	5.3	4.8	8.2	8.2	8.5	3.3	/	8.2	8.2	5.4	5.4	2.7
IC551	7.1	13.5	14.4	0	/	/	6.9	/	0	0	1.4	1.4																		
IC801	8.5	FM 4.5 AM 0	0	14.4	8.5	/	8.5																							
IC902	7.7	2.1	3.1	/	2.1	/	2.1	0	3.0	0	/	/	/	/	/	3.0	1.9	3.0	/	5.5	3.0	2.9								


P. C. BOARD UNIT
RL
FL
RR
FR
1
5
4
2
3
S1-1 S1-2 S1-3
S1 : FWD/REV SWITCH
SWITCH P.C. BOARD
S1
MUTE SWITCH
S2
MOTOR SWITCH
S3
TAPE/TUNER SWITCH
M
FM P.C. BOARD
IC, Q IC151 IC101 Q51 Q53 Q52 IC51
ADJ VR152 VR51 T51
FM FRONT END CWB1035
CN6
CN3


MOTHER P.C. BOARD
Q201 Q202 Q501 IC201 Q203 Q601 Q602 Q608 Q607 Q609 Q603 Q604 Q605
IC, Q IC251 Q251 Q252 Q504 Q503 Q505 IC501 Q512 Q510 Q514 Q511 Q509 Q513 Q515 Q516 Q610 Q606 Q651 Q652
ADJ T203 T204 T205 T206
ANT
GND
CN3
CN4
CN10
CN9
CN5
CN2
CN11
IC201
IC251
IC501
LCD
COM0 COM1
BATTERY 3v
1.2v
2.9v
0.7v
2.8v
4.9v
6v

MOTHER P.C.BOARD

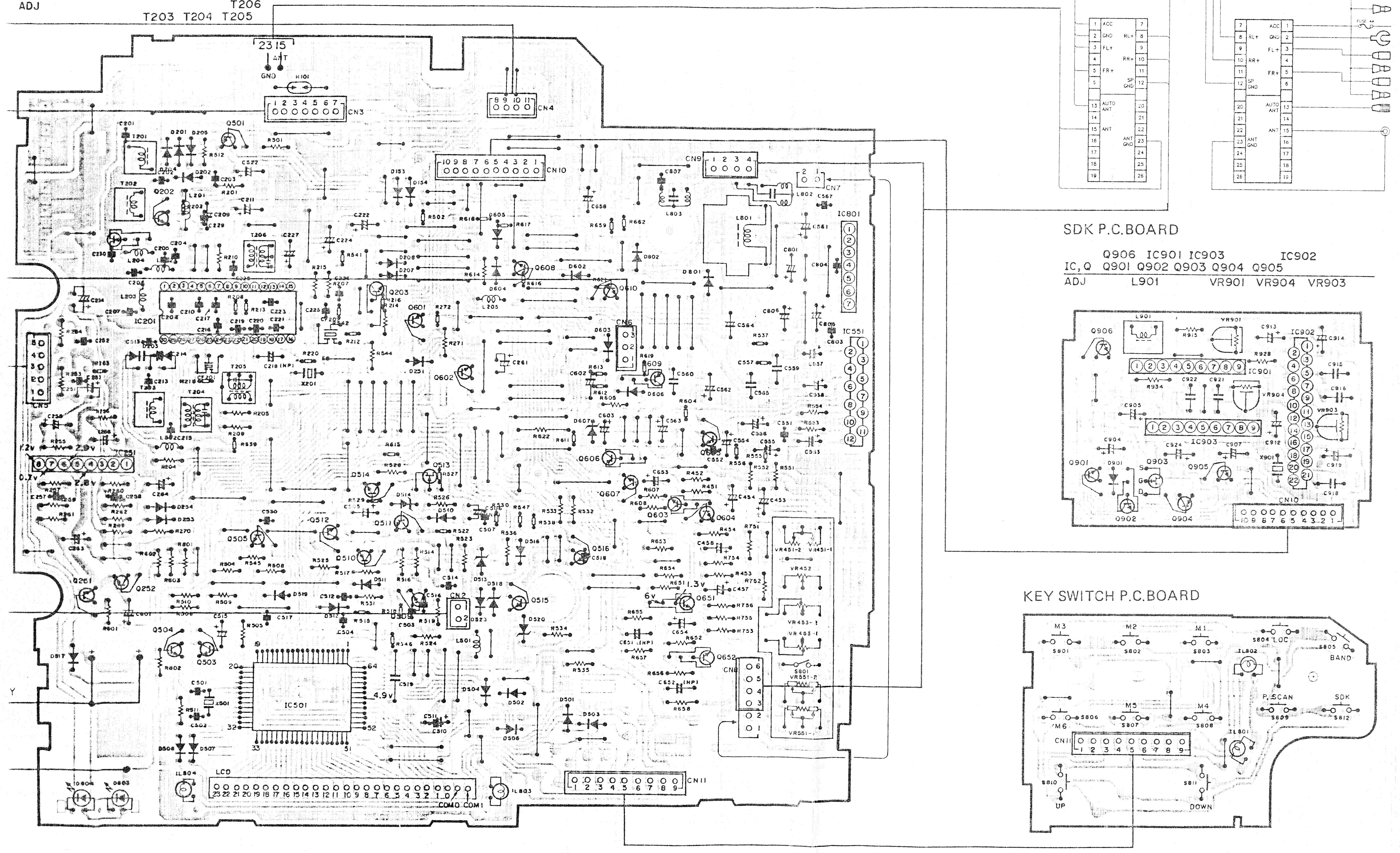
Q201 Q202 Q501 IC201 Q203 Q601 Q602 Q608 Q607 Q609 Q603 Q604 Q605 IC801
IC, Q IC251 Q251 Q252 Q504 Q503 Q505 IC501 Q512 Q510 Q514 Q511 Q509 Q513 Q515 Q516 Q610 Q606 Q651 Q652 IC551

T206
ADJ T203 T204 T205

SDK P.C.BOARD

Q906 IC901 IC903 IC902
IC, Q Q901 Q902 Q903 Q904 Q905
ADJ L901 VR901 VR904 VR903

KEY SWITCH P.C.BOARD

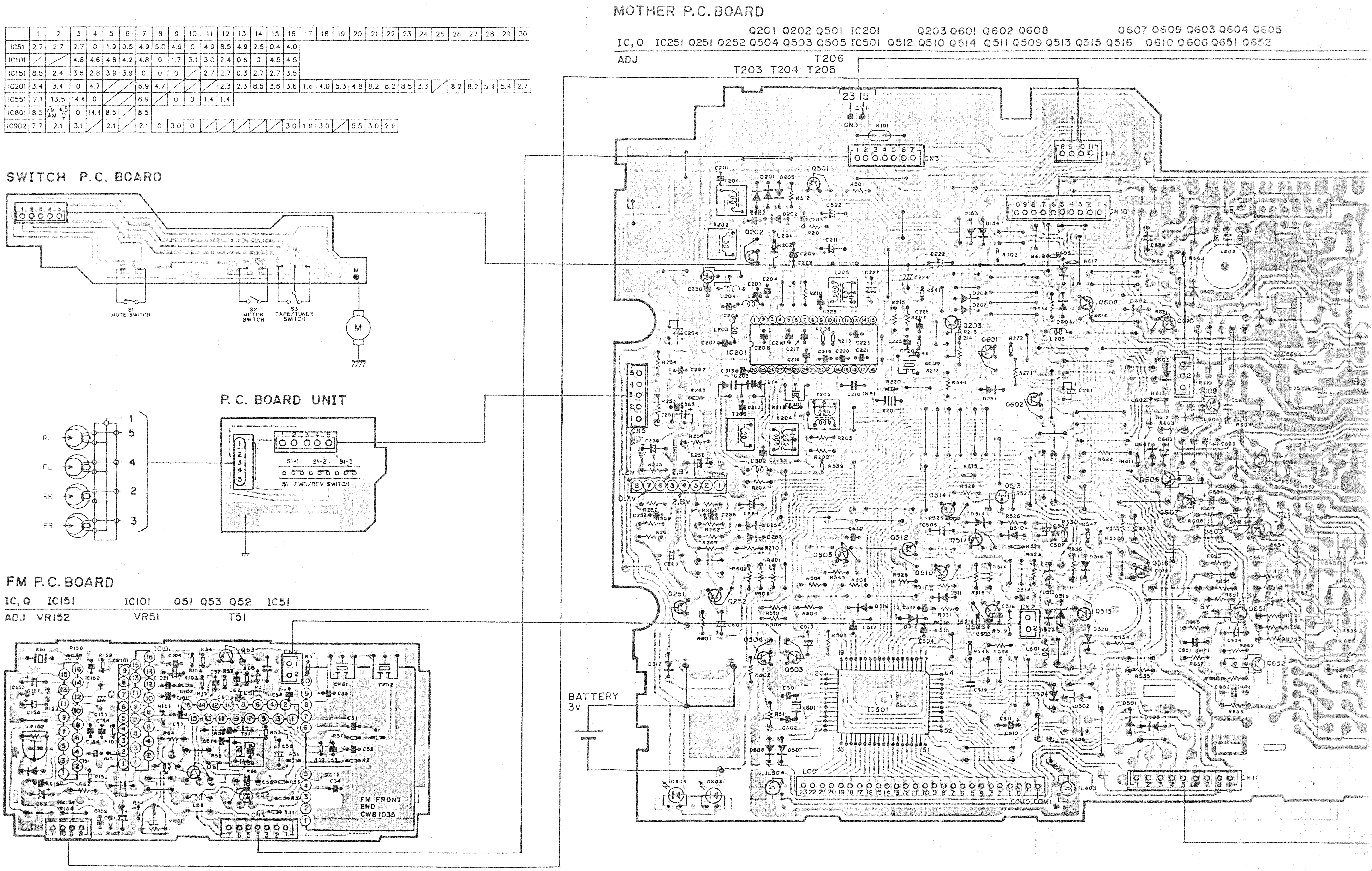

2315
ANT
GND
CN3
CN4
CN9
CN10
CN7
CN6
CN2
CN8
CN11
CN5
IC201
IC501
IC801
IC551
T201
T202
T203
T204
T205
T206
L801
L802
L803
LCD
COM0 COM1
IL803
IL804
D803
D804
ACC
GND
FL+
FR+
RL+
RR+
SP GND
AUTO ANT
ANT
ANT GND
FUSE
L901
VR901
Q906
IC902
IC901
VR904
IC903
VR903
X901
Q901
Q902
Q903
Q904
Q905
M3
M2
M1
S801
S802
S803
S804
LOC
S805
BAND
IL802
P.SCAN
SDK
S809
S812
S806
M6
M5
S807
M4
S808
IL801
S810
UP
S811
DOWN

A B C D

Fig. 10

11. CONNECTION DIAGRAM (KE-2030SDK)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
IC51	2.7	2.7	2.7	0	1.9	0.5	4.9	5.0	4.9	0	4.9	8.5	4.9	2.5	0.4	4.0														
IC101	/	/	4.6	4.6	4.6	4.2	4.8	0	1.7	3.1	3.0	2.4	0.6	0	4.5	4.5														
IC151	8.5	2.4	3.6	2.8	3.9	3.9	0	0	0	/	2.7	2.7	0.3	2.7	2.7	3.5														
IC201	3.4	3.4	0	4.7	/	/	6.9	4.7	/	/	/	2.3	2.3	8.5	3.6	3.6	1.6	4.0	5.3	4.8	8.2	8.2	8.5	3.3	/	8.2	8.2	5.4	5.4	2.7
IC551	7.1	13.5	14.4	0	/	/	6.9	/	0	0	1.4	1.4																		
IC801	8.5	FM 4.5 AM 0	0	14.4	8.5	/	8.5																							
IC902	7.7	2.1	3.1	/	2.1	/	2.1	0	3.0	0	/	/	/	/	/	3.0	1.9	3.0	/	5.5	3.0	2.9								


MOTHER P.C. BOARD
IC, Q IC251 Q251 Q252 Q201 Q202 Q501 IC201 Q504 Q503 Q505 IC501 Q512 Q203 Q601 Q602 Q608 Q510 Q514 Q511 Q509 Q513 Q515 Q516 Q607 Q609 Q603 Q604 Q605 Q610 Q606 Q651 Q652
ADJ T206 T203 T204 T205
23 15
ANT
GND
CN3
CN4
CN5
CN10
CN11
IC201
IC251
IC501
LCD
COM0 COM1
BATTERY 3v
SWITCH P.C. BOARD
S1 MUTE SWITCH
S2 MOTOR SWITCH
S3 TAPE/TUNER SWITCH
M
P. C. BOARD UNIT
S1-1 S1-2 S1-3
S1 : FWD/REV SWITCH
RL
FL
RR
FR
1
5
4
2
3
FM P.C. BOARD
IC, Q IC151 IC101 Q51 Q53 Q52 IC51
ADJ VR152 VR51 T51
FM FRONT END CWB 1035

A

B

C

D

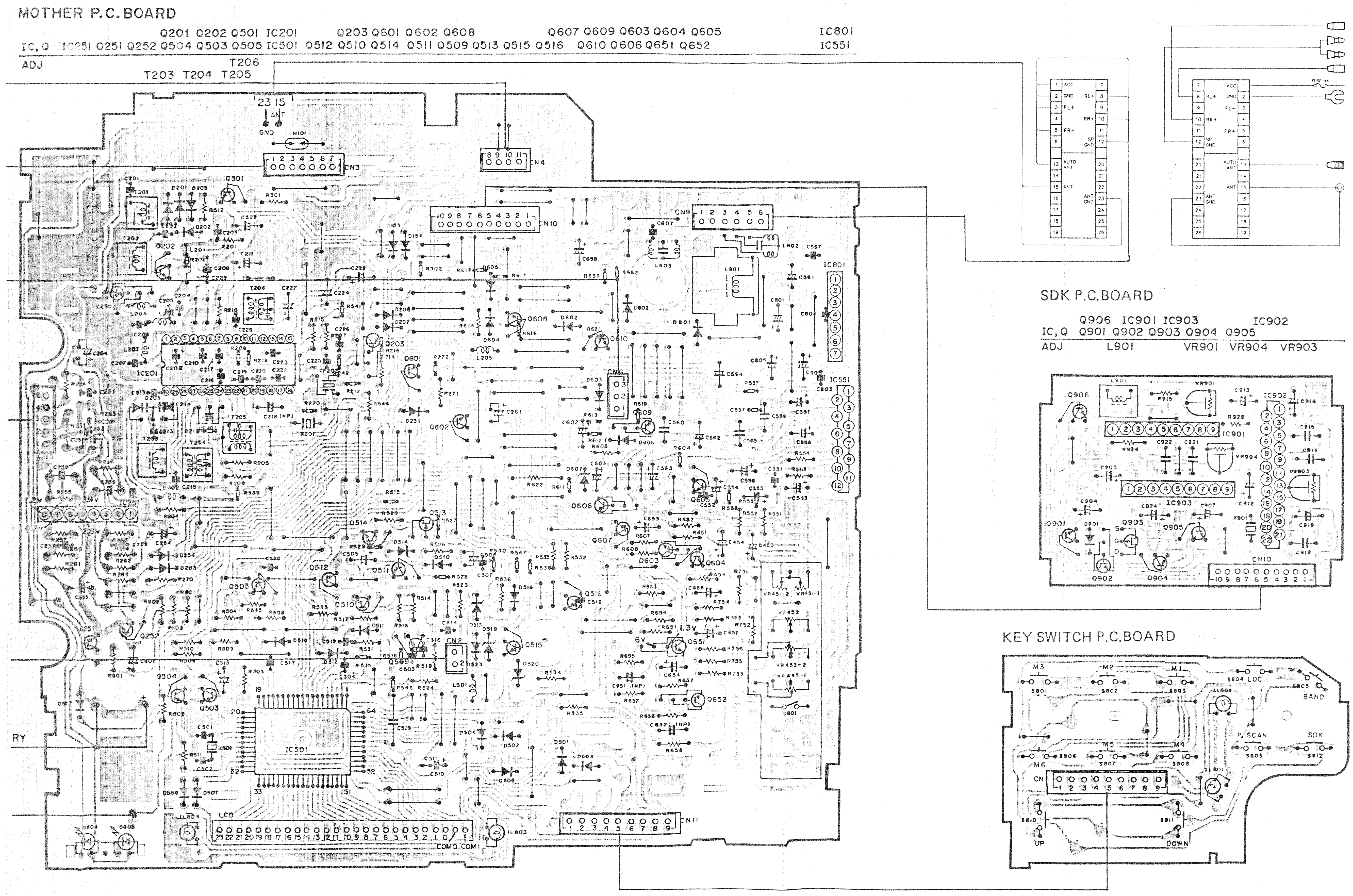
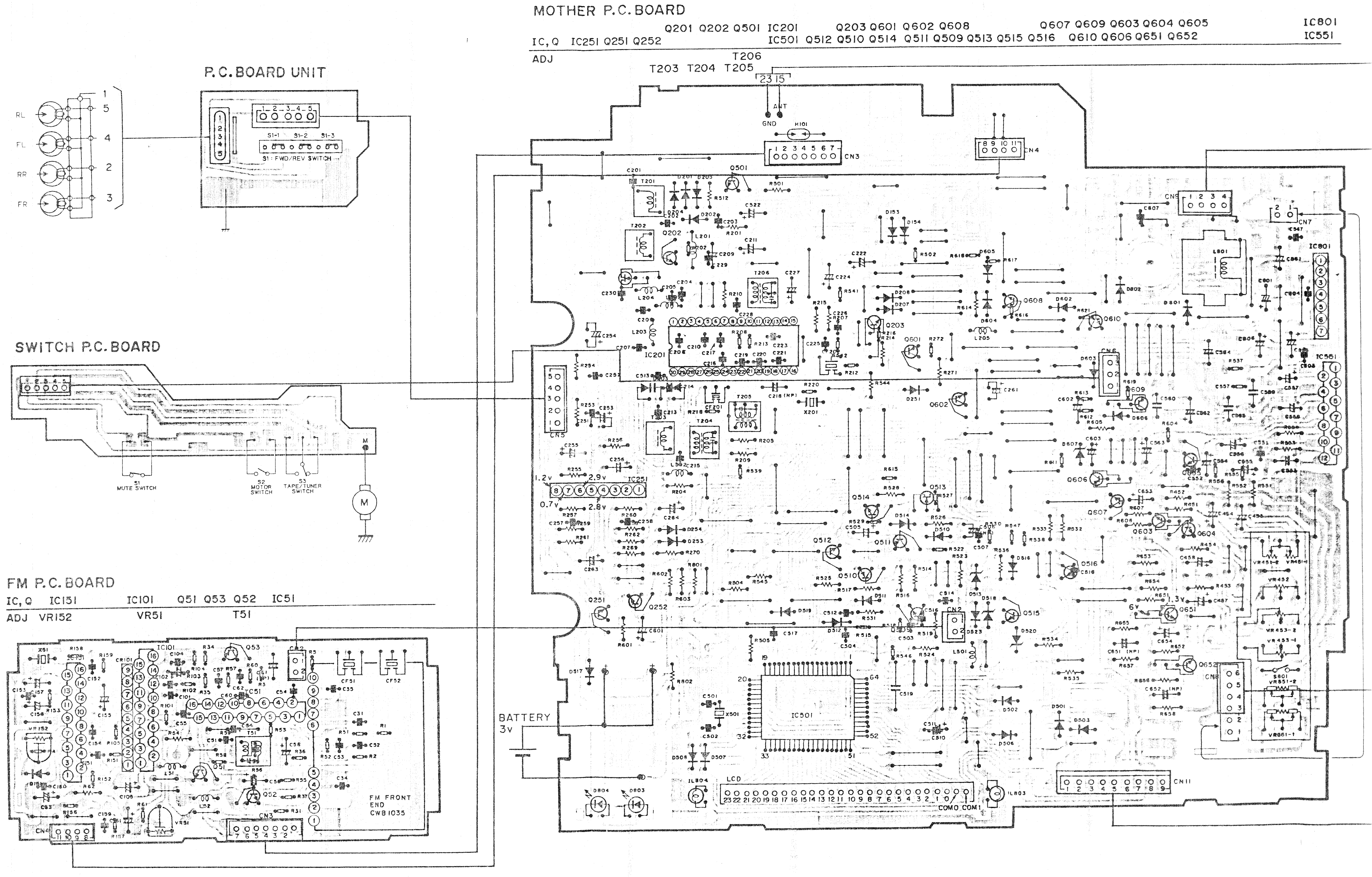
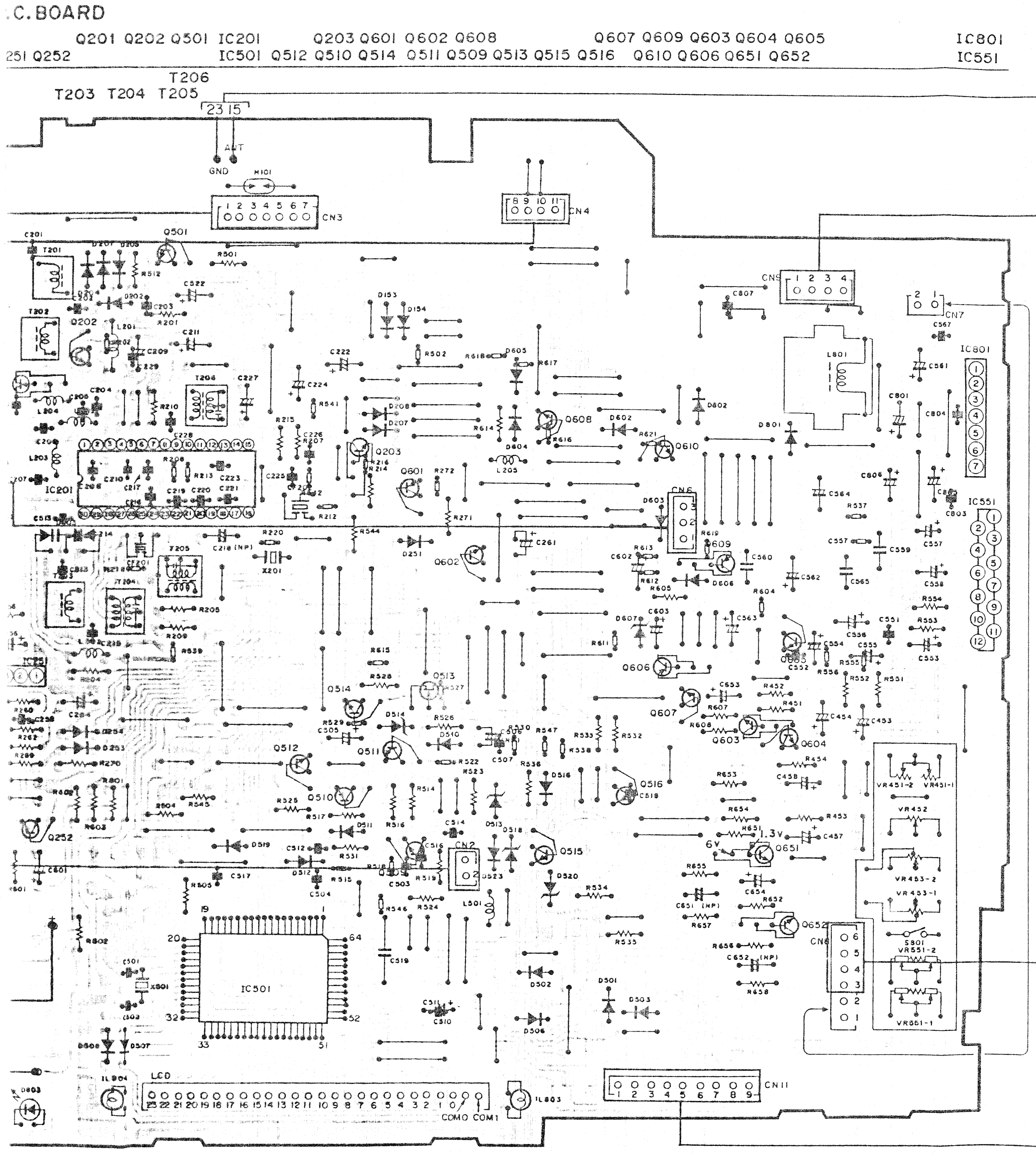

MOTHER P.C.BOARD
IC, Q
IC251 Q251 Q252
Q201 Q202 Q501 IC201
Q504 Q503 Q505 IC501
Q203 Q601 Q602 Q608
Q512 Q510 Q514 Q511 Q509 Q513 Q515 Q516
Q607 Q609 Q603 Q604 Q605
Q610 Q606 Q651 Q652
IC801
IC551
ADJ
T203 T204 T205
T206
ANT
GND
CN3
CN4
CN9
CN10
CN6
CN2
CN11
IC201
IC501
IC801
IC551
LCD
COM0 COM1
RY
SDK P.C.BOARD
IC, Q
Q906 IC901 IC903
Q901 Q902 Q903 Q904 Q905
IC902
ADJ
L901
VR901 VR904 VR903
CN10
KEY SWITCH P.C.BOARD
M3 M2 M1
S801 S802 S803
S804 LOC
S805 BAND
P. SCAN
SDK
S809 S812
M5 M4 M6
S806 S807 S808
CN1
S810 UP
S811 DOWN
ACC
GND
FL+
FR+
RL+
RR+
SP GND
AUTO ANT
ANT
ANT GND

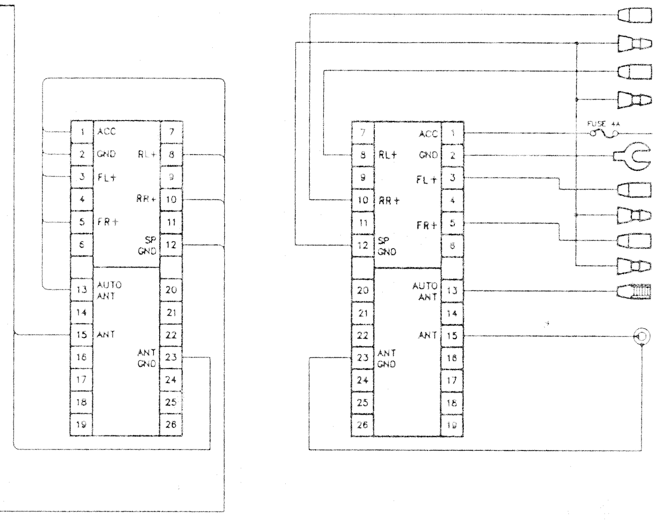
Fig. 12

12. CONNECTION DIAGRAM (KE-2090B)


1
2
3
4
5
6
A
B
C
D
MOTHER P.C.BOARD
IC, Q IC251 Q251 Q252 Q201 Q202 Q501 IC201 IC501 Q512 Q510 Q514 Q203 Q601 Q602 Q608 Q511 Q509 Q513 Q515 Q516 Q607 Q609 Q603 Q604 Q605 Q610 Q606 Q651 Q652 IC801 IC551
ADJ T203 T204 T205 T206
P.C. BOARD UNIT
S1: FWD/REV SWITCH
RL
FL
RR
FR
SWITCH P.C.BOARD
S1 MUTE SWITCH
S2 MOTOR SWITCH
S3 TAPE/TUNER SWITCH
M
FM P.C.BOARD
IC, Q IC151 IC101 Q51 Q53 Q52 IC51
ADJ VR152 VR51 T51
FM FRONT END CWB1035
BATTERY 3v
ANT
GND
CN3
CN4
CN5
CN6
CN7
CN8
CN9
CN11
IC201
IC251
IC501
IC801
IC551
LCD
COM0 COM1
IL803
IL804
D803
D804
X501
X201
1.2v
2.9v
0.7v
2.8v
6v
1.3v

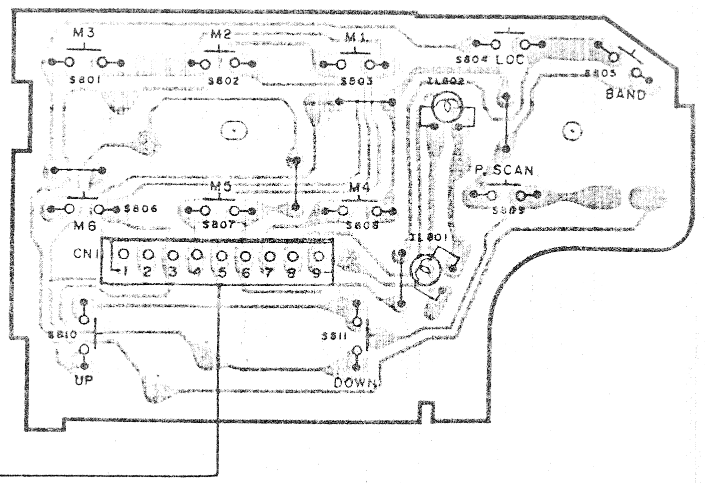
.C.BOARD


Q201 Q202 Q501 IC201 Q203 Q601 Q602 Q608 Q607 Q609 Q603 Q604 Q605 IC801
251 Q252 IC501 Q512 Q510 Q514 Q511 Q509 Q513 Q515 Q516 Q610 Q606 Q651 Q652 IC551
T206
T203 T204 T205
ANT
GND
H101
CN3
CN4
CN5
CN6
CN7
CN8
CN11
L801
IC801
IC551
IC201
IC501
VR451-2 VR451-1
VR452
VR453-2
VR453-1
S901
VR551-2
VR551-1
1.3V
6V
LCD
COM0 COM1
IL803
IL804


ACC
GND
FL+
FR+
RL+
RR+
SP GND
AUTO ANT
ANT
ANT GND
FUSE

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
IC51	2.7	2.7	2.7	0	1.9	0.5	4.9	5.0	4.9	0	4.9	8.5	4.9	2.5	0.4	4.0														
IC101	/	/	4.6	4.6	4.6	4.2	4.8	0	1.7	3.1	3.0	2.4	0.6	0	4.5	4.5														
IC151	8.5	2.4	3.6	2.8	3.9	3.9	0	0	0	/	2.7	2.7	0.3	2.7	2.7	3.5														
IC201	3.4	3.4	0	4.7	/	/	6.9	4.7	/	/	/	2.3	2.3	8.5	3.6	3.6	1.6	4.0	5.3	4.8	8.2	8.2	8.5	3.3	/	8.2	8.2	5.4	5.4	2.7
IC551	7.1	13.5	14.4	0	/	/	6.9	/	0	0	1.4	1.4																		
IC801	8.5	FM 4.5 AM 0	0	14.4	8.5	/	8.5																							

KEY SWITCH P.C.BOARD


M3
M2
M1
S801
S802
S803
S804 LOC
S805
BAND
IL802
P. SCAN
S809
S806
M5
M4
M6
S807
S808
CN1
IL801
S810
UP
S811
DOWN

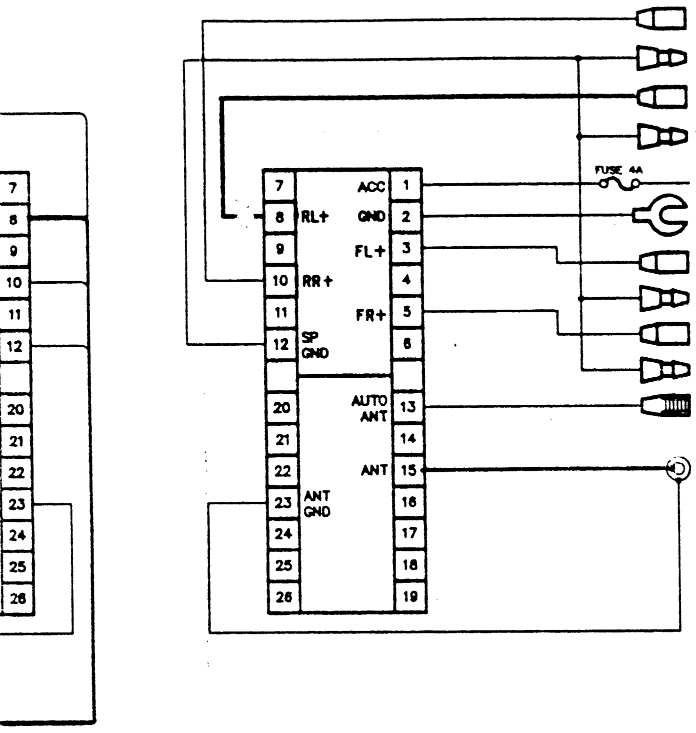
A
B
C
D

Fig. 13

Tuner Amp Unit

Consists of
- Mother P.C.Board
- FM P.C.Board
- Key Switch P.C.Board
- SDK P.C.Board

A


7
8
9
10
11
12
20
21
22
23
24
25
26
RL+
RR+
SP GND
ANT GND
ACC
GND
FL+
FR+
AUTO ANT
ANT
1
2
3
4
5
6
13
14
15
16
17
18
19
FUSE 4A

NOTE:
—▭— Indicates a chip resistor.
—▮— Indicates a chip capacitor.

SWITCHES:

◉MOTHER P.C.BOARD
S801: POWER SWITCH················ON—OFF

◉P.C.BOARD UNIT
S1: FWD/REV SWITCH···············FWD—REV

◉SWITCH P.C.BOARD
S1: MUTE SWITCH······ON(EJECT)—OFF(PLAY)
S2: MOTOR SWITCH··················ON—OFF
S3: TAPE/TUNER SWITCH·········TAPE—TUNER

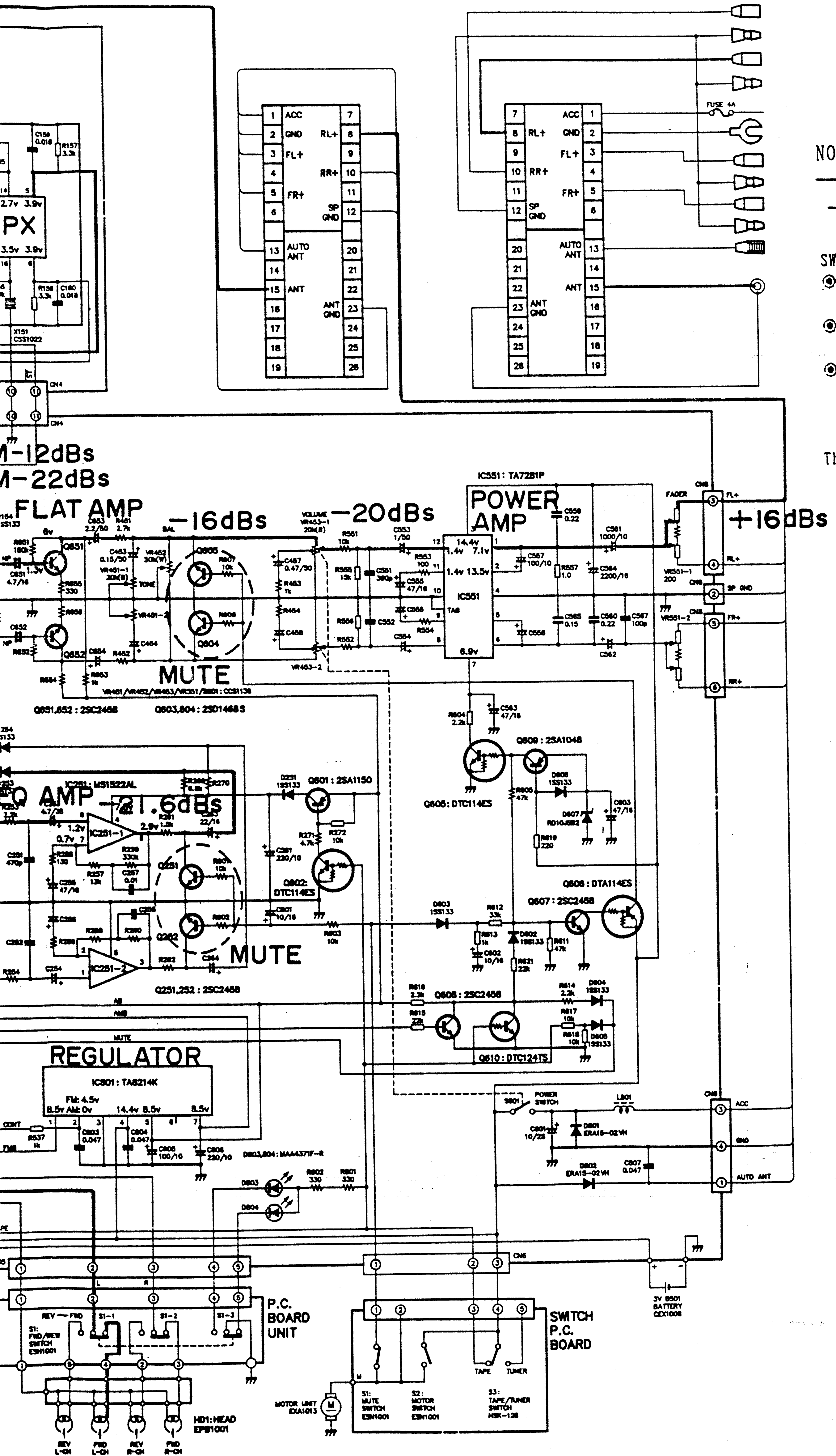
The underlined indicates the switch position.

B

C

D

Fig. 9


M-12dBs
M-22dBs
PX
FLAT AMP
-16dBs
-20dBs
IC551: TA7281P
POWER AMP
+16dBs
MUTE
Q651,652 : 2SC2458
Q603,604 : 2SD1468S
IC251: M51522AL
EQ AMP -21.6dBs
Q601 : 2SA1150
Q602: DTC114ES
Q605: DTC114ES
Q609 : 2SA1048
Q606 : DTA114ES
Q607 : 2SC2458
MUTE
Q251,252 : 2SC2458
Q608 : 2SC2458
Q610 : DTC124TS
REGULATOR
IC801 : TA8214K
S801 POWER SWITCH
P.C. BOARD UNIT
SWITCH P.C. BOARD
HD1: HEAD EPB1001
MOTOR UNIT EXA1013
3V B501 BATTERY CEX1008

-73.8dBs TEST TAPE : 315Hz, 160nwb/m

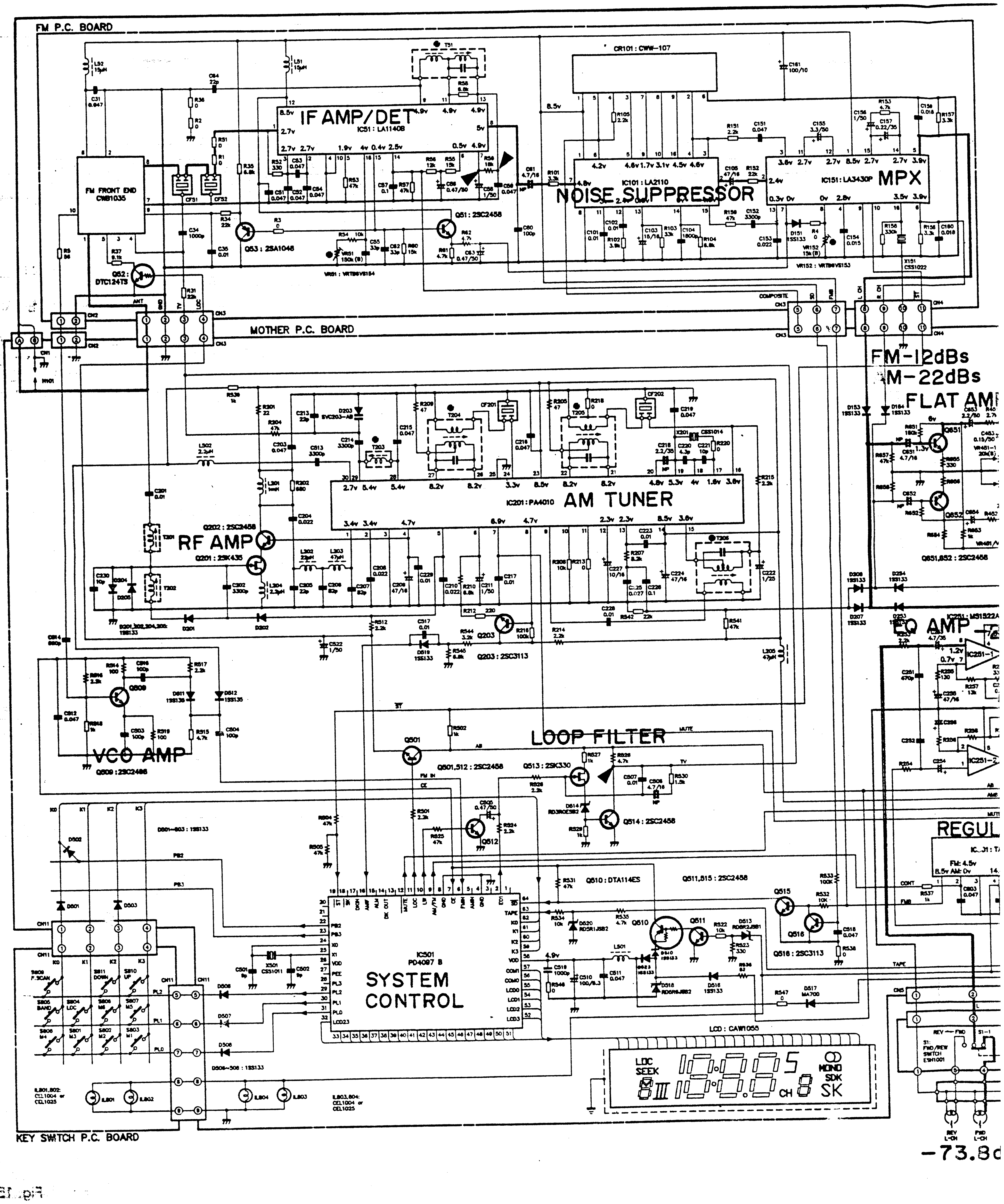
Tuner Amp Unit
Consists of • Mother P.C.Board • FM P.C.Board • Key Switch P.C.Board

NOTE:
▭ Indicates a chip resistor.
▮ Indicates a chip capacitor.

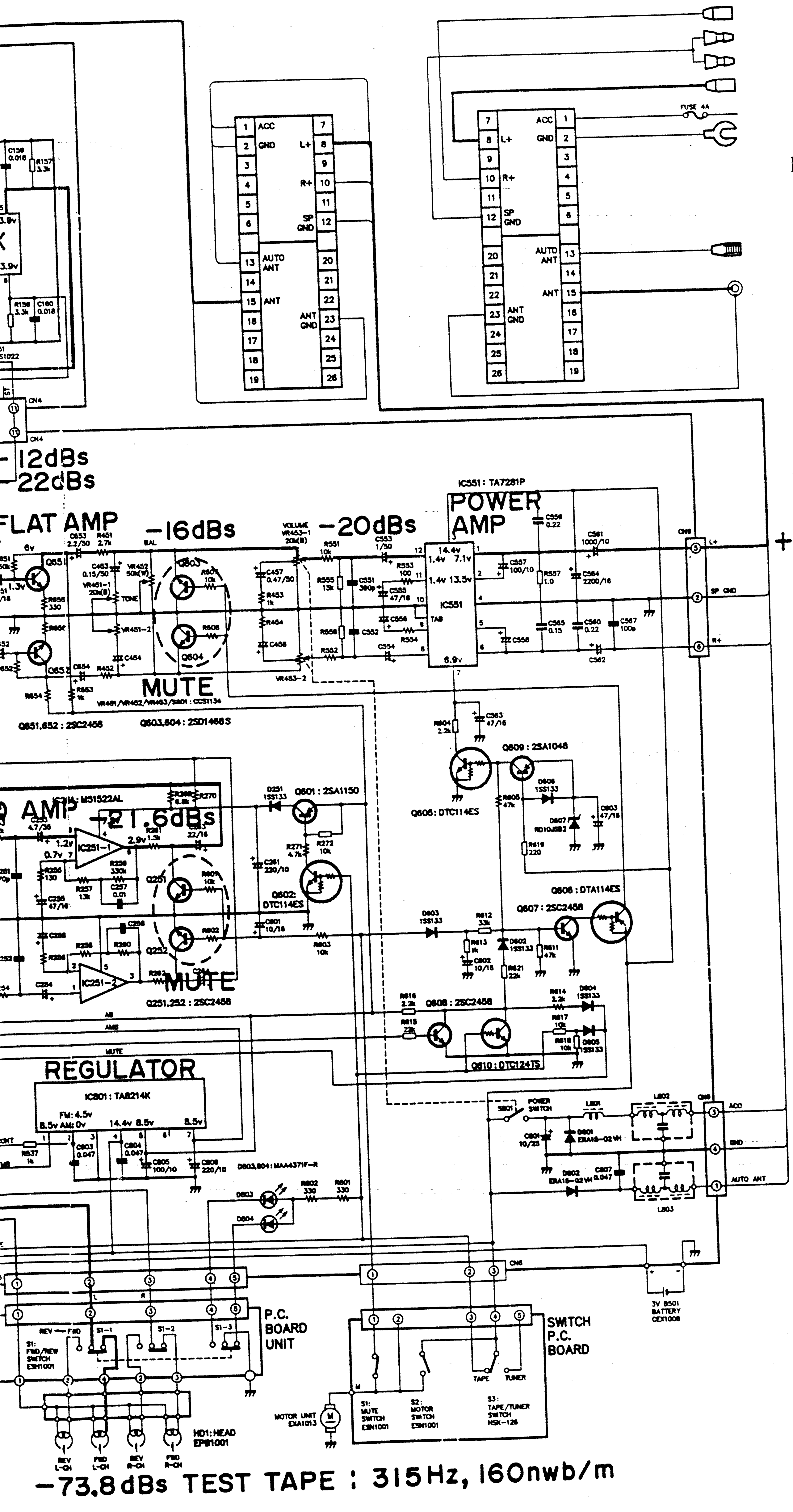
SWITCHES:
◉MOTHER P.C.BOARD
S801: POWER SWITCH················ON−OFF
◉P.C.BOARD UNIT
S1: FWD/REV SWITCH···············FWD−REV
◉SWITCH P.C.BOARD
S1: MUTE SWITCH······ON(EJECT)−OFF(PLAY)
S2: MOTOR SWITCH···················ON−OFF
S3: TAPE/TUNER SWITCH··········TAPE−TUNER
The underlined indicates the switch position.

Fig. 14

13. SCHEMATIC CIRCUIT DIAGRAM (KE-2090B)


1
2
3
A
B
C
D
FM P.C. BOARD
IF AMP/DET
IC51 : LA1140B
CR101 : CWW-107
NOISE SUPPRESSOR
IC101 : LA2110
MPX
IC151 : LA3430P
FM FRONT END
CWB1035
Q51 : 2SC2458
Q53 : 2SA1048
Q52 : DTC124TS
VR51 : VRTB6VS154
VR152 : VRTB6VS153
X151 CSS1022
MOTHER P.C. BOARD
COMPOSITE
FM-12dBs
AM-22dBs
FLAT AMP
Q651,652 : 2SC2458
AM TUNER
IC201 : PA4010
RF AMP
Q202 : 2SC2458
Q201 : 2SK435
D201,202,204,205 : 1SS133
Q203 : 2SC3113
EQ AMP
IC251 : M51522A
VCO AMP
Q509 : 2SC2458
LOOP FILTER
Q501,512 : 2SC2458
Q513 : 2SK330
Q514 : 2SC2458
Q510 : DTA114ES
Q511,515 : 2SC2458
Q516 : 2SC3113
D501~503 : 1SS133
D506~508 : 1SS133
SYSTEM CONTROL
IC501 PD4097 B
LCD : CAW1055
LDC
SEEK
MONO
SDK
SK
CH
REGUL
IL801,802: CEL1004 or CEL1025
IL803,804: CEL1004 or CEL1025
KEY SWITCH P.C. BOARD
S1 : FWD/REW SWITCH ESH1001
REV L-CH
FWD L-CH
-73.8d
1
2
3

Tuner Amp Unit
Consists of ● Mother P. C. Board ● FM P. C. Board ● Key Switch P. C. Board


-12dBs
-22dBs
FLAT AMP
-16dBs
-20dBs
IC551: TA7281P
POWER AMP
+17dBs
MUTE
VR451/VR452/VR453/S801 : CCS1134
Q651,652 : 2SC2458
Q603,604 : 2SD1468S
IC251: M51522AL
AMP -21.6dBs
Q601 : 2SA1150
Q602: DTC114ES
Q605: DTC114ES
Q609 : 2SA1048
Q606 : DTA114ES
Q607 : 2SC2458
Q608 : 2SC2458
Q610 : DTC124TS
Q251,252 : 2SC2458
MUTE
REGULATOR
IC801 : TA8214K
D803,804 : MAA4371F-R
FUSE 4A
ACC
GND
L+
R+
SP GND
AUTO ANT
ANT
ANT GND
S801 POWER SWITCH
L802
L803
D801 ERA15-02VH
D802 ERA15-02VH
3V B501 BATTERY CDX1008
P.C. BOARD UNIT
S1: FWD/REV SWITCH ESN1001
REV FWD
SWITCH P.C. BOARD
S1: MUTE SWITCH ESN1001
S2: MOTOR SWITCH ESN1001
S3: TAPE/TUNER SWITCH HSK-126
TAPE TUNER
MOTOR UNIT EXA1013
HD1: HEAD EPB1001
REV L-CH
FWD L-CH
REV R-CH
FWD R-CH
-73.8dBs TEST TAPE : 315Hz, 160nwb/m

NOTE:

—▭— Indicates a chip resistor.

—▮— Indicates a chip capacitor.

SWITCHES:

◉MOTHER P. C. BOARD

S801: POWER SWITCH················ON－OFF

◉P. C. BOARD UNIT

S1: FWD/REV SWITCH···············FWD－REV

◉SWITCH P. C. BOARD

S1: MUTE SWITCH······ON(EJECT)－OFF(PLAY)

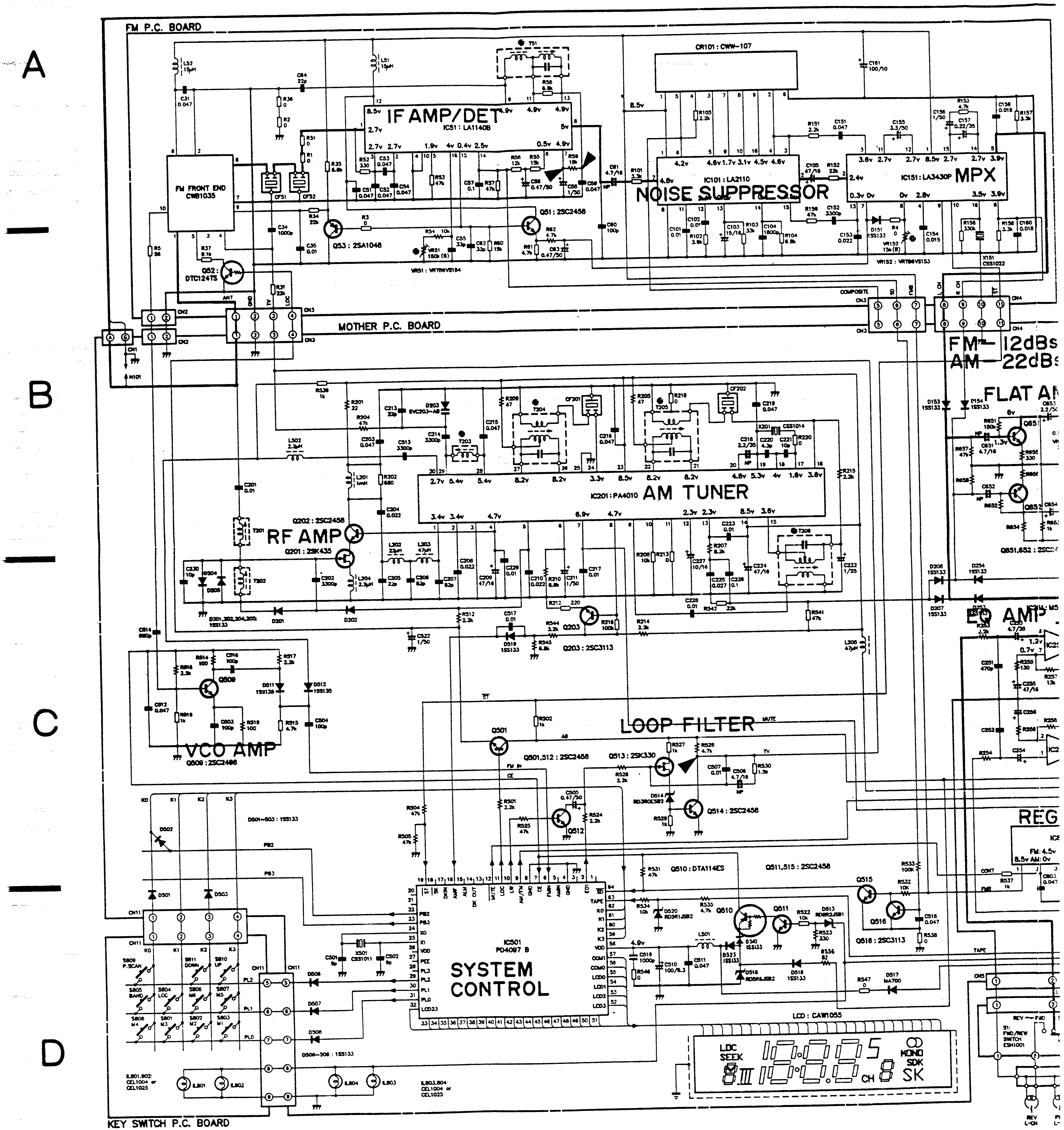
S2: MOTOR SWITCH···················ON－OFF

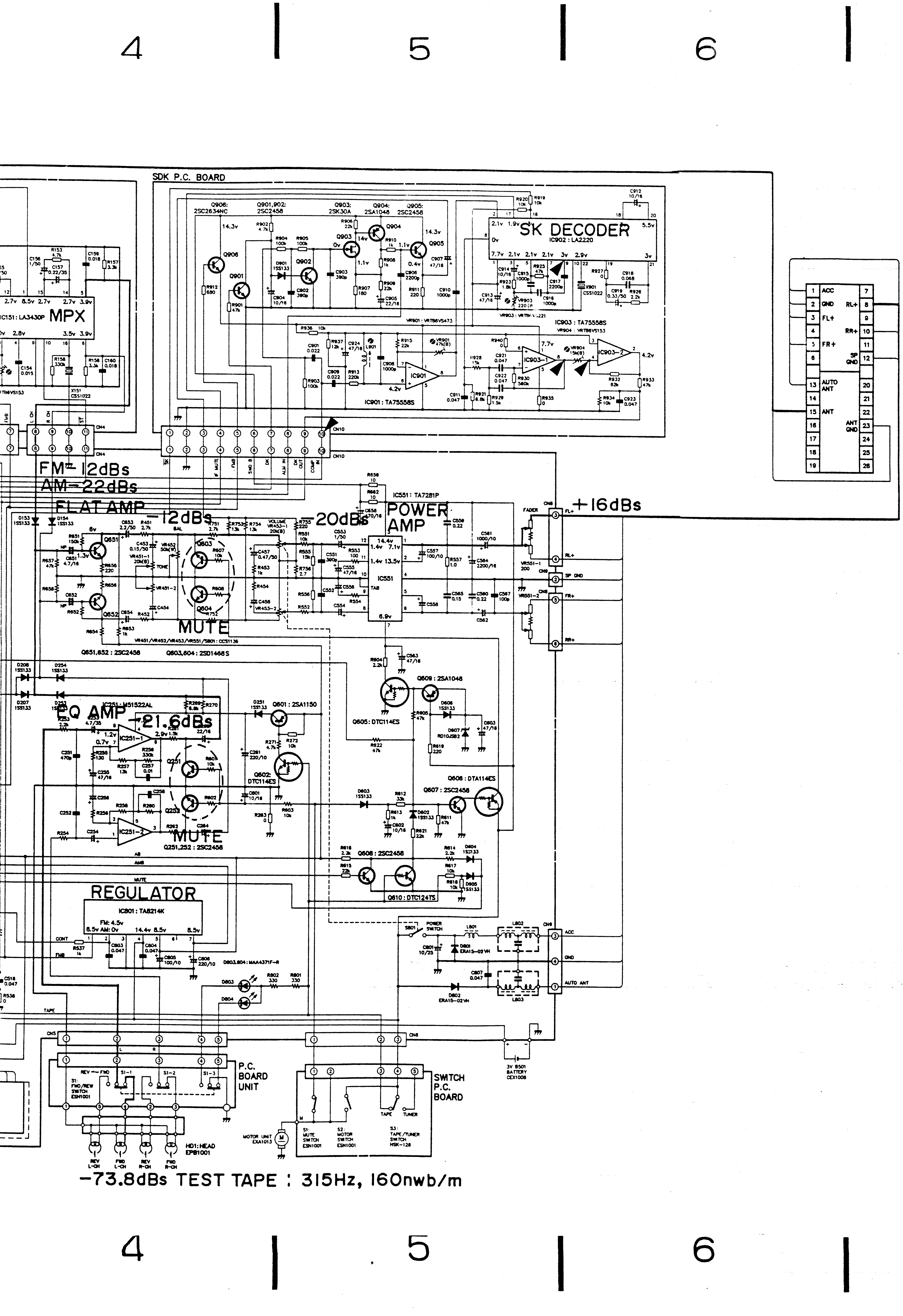
S3: TAPE/TUNER SWITCH·········TAPE－TUNER

The underlined indicates the switch position.

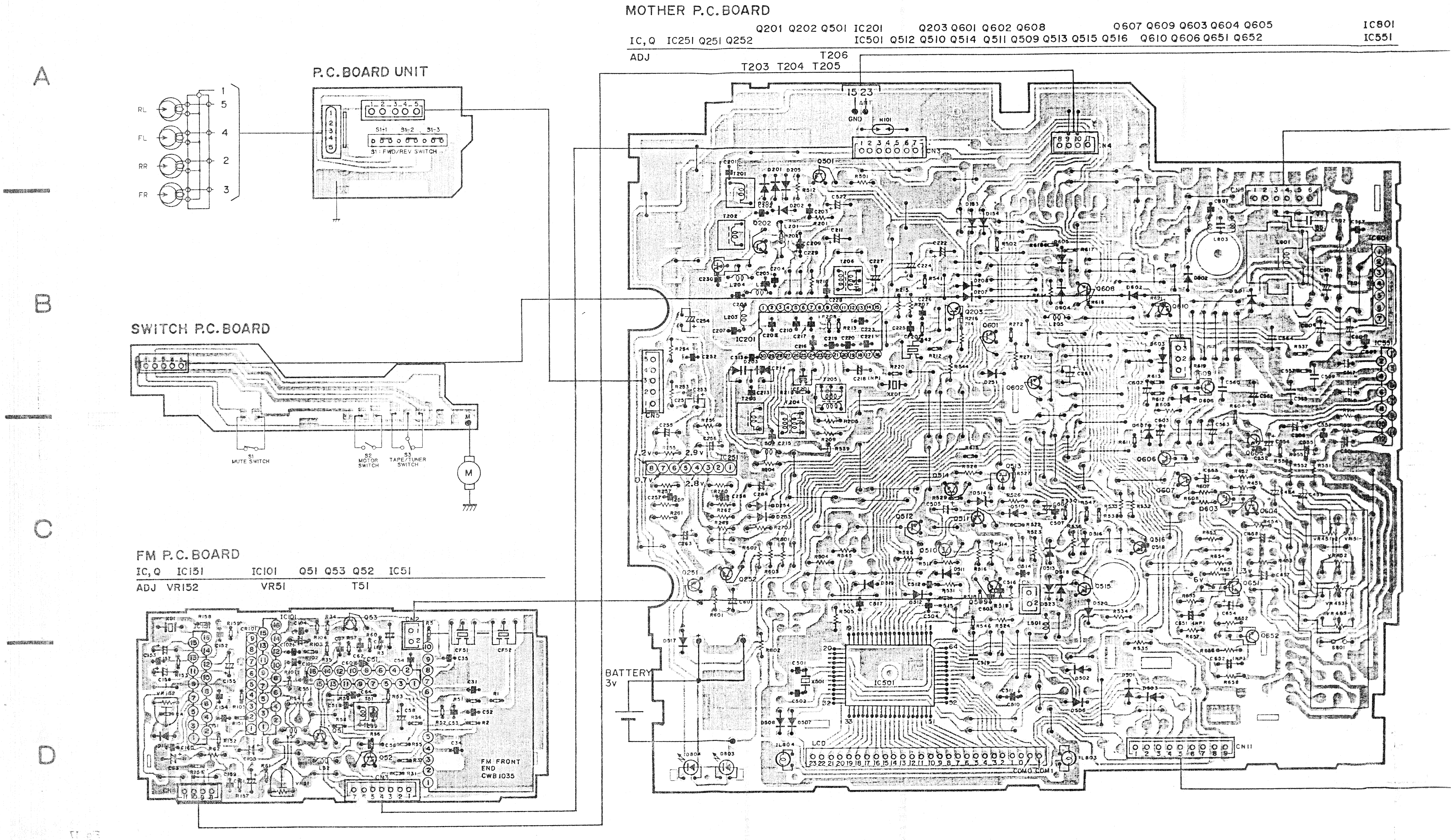
Fig. 15

14. SCHEMATIC CIRCUIT DIAGRAM (KE-2030B)


A
B
C
D
FM P.C. BOARD
FM FRONT END CWB1035
IF AMP/DET
IC51 : LA1140B
CR101 : CWW-107
NOISE SUPPRESSOR
IC101 : LA2110
IC151 : LA3430P MPX
Q51 : 2SC2458
Q52 : DTC124TS
Q53 : 2SA1048
VR51 : VRTB6VS184
VR152 : VRTB6VS153
X151 CSS1022
MOTHER P.C. BOARD
FM— 12dBs
AM— 22dBs
FLAT AM
Q651,652 : 2SC
AM TUNER
IC201 : PA4010
RF AMP
Q202 : 2SC2458
Q201 : 2SK435
D201,202,204,205 : 1SS133
Q203 : 2SC3113
EQ AMP
VCO AMP
Q509 : 2SC2458
LOOP FILTER
Q501,512 : 2SC2458
Q513 : 2SK330
Q514 : 2SC2458
Q510 : DTA114ES
Q511,515 : 2SC2458
Q516 : 2SC3113
REG
SYSTEM CONTROL
IC501 PD4097 B
D501~503 : 1SS133
D506~508 : 1SS133
LCD : CAW1055
LOC SEEK MONO SDK SK CH
KEY SWITCH P.C. BOARD
S809 P.SCAN
S811 DOWN
S810 UP
S805 BAND
S804 LOC
S806 M4
S807 M5
S808 M4
S801 M3
S802 M2
S803 M1
IL801,802: CEL1004 or CEL1025
IL803,804: CEL1004 or CEL1025
S1: FWD/REV SWITCH ESH1001

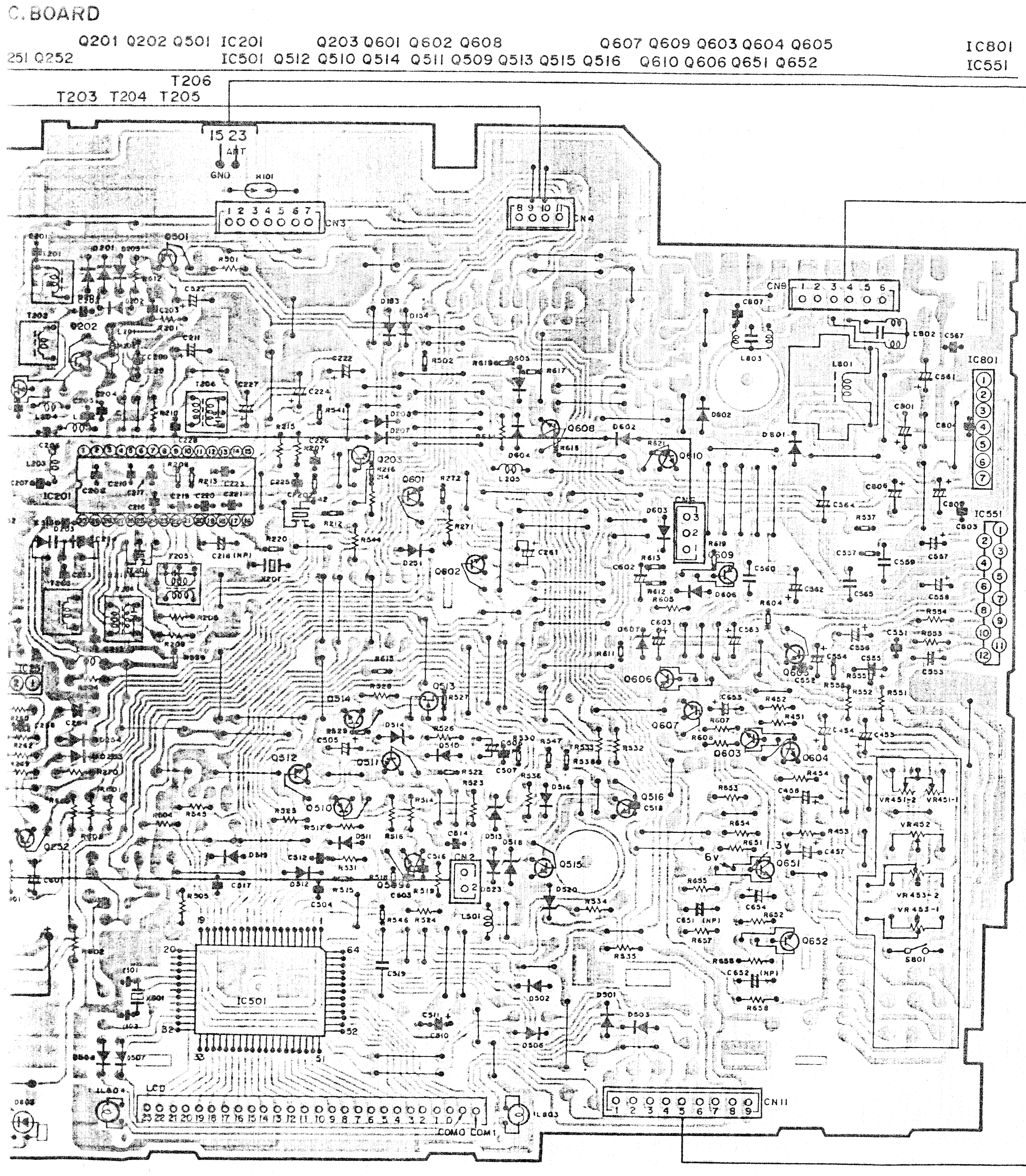

4
5
6
SDK P.C. BOARD
SK DECODER
IC902 : LA2220
IC903 : TA75558S
IC901 : TA75558S
Q906: 2SC2634NC
Q901,902: 2SC2458
Q903: 2SK30A
Q904: 2SA1048
Q905: 2SC2458
VR901 : VRTB6VS473
VR903 : VRTB6VS221
VR904 : VRTB6VS153
X901 CSS1022
IC151: LA3430P
MPX
X151 CSS1022
CN4
CN10
FM- 12dBs
AM- 22dBs
FLAT AMP
-12dBs
-20dBs
POWER AMP
IC551: TA7281P
IC551
MUTE
+16dBs
FADER
VR551-1 200
VR551-2
VR451/VR452/VR453/VR551/S801 : CCS1136
Q651,652 : 2SC2458
Q603,604 : 2SD1468S
EQ AMP
IC251 : M51522AL
-21.6dBs
Q251,252 : 2SC2458
Q601 : 2SA1150
Q602: DTC114ES
Q605 : DTC114ES
Q609 : 2SA1048
Q606 : DTA114ES
Q607 : 2SC2458
Q608 : 2SC2458
Q610 : DTC124TS
D607 RD10JSB2
REGULATOR
IC801 : TA8214K
FM: 4.5v
8.5v AM: 0v
D803,804 : MAA4371F-R
POWER SWITCH
D801 ERA15-02VH
D802 ERA15-02VH
L801
L802
L803
ACC
GND
AUTO ANT
FL+
RL+
SP GND
FR+
RR+
1 ACC
2 GND
3 FL+
4
5 FR+
6
13 AUTO ANT
14
15 ANT
16
17
18
19
7
8 RL+
9
10 RR+
11
12 SP GND
20
21
22
23 ANT GND
24
25
26
CN5
CN6
P.C. BOARD UNIT
S1: FWD/REW SWITCH ESN1001
REV — FWD
HD1: HEAD EPB1001
REV L-CH
FWD L-CH
REV R-CH
FWD R-CH
SWITCH P.C. BOARD
MOTOR UNIT EXA1013
S1: MUTE SWITCH ESN1001
S2: MOTOR SWITCH ESN1001
S3: TAPE/TUNER SWITCH HSK-128
TAPE
TUNER
3V B501 BATTERY CEX1008
-73.8dBs TEST TAPE : 315Hz, 160nwb/m

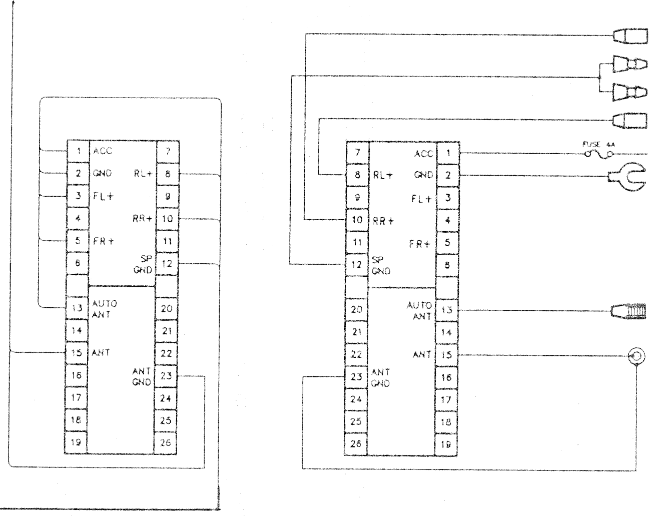
15. CONNECTION DIAGRAM (KE-2030B)


1 2 3 4 5 6
A
B
C
D
MOTHER P.C.BOARD
Q201 Q202 Q501 IC201 Q203 Q601 Q602 Q608 Q607 Q609 Q603 Q604 Q605 IC801
IC, Q IC251 Q251 Q252 IC501 Q512 Q510 Q514 Q511 Q509 Q513 Q515 Q516 Q610 Q606 Q651 Q652 IC551
ADJ T203 T204 T205 T206
P.C.BOARD UNIT
S1 : FWD/REV SWITCH
S1-1 S1-2 S1-3
RL
FL
RR
FR
SWITCH P.C.BOARD
S1 MUTE SWITCH
S2 MOTOR SWITCH
S3 TAPE/TUNER SWITCH
M
FM P.C.BOARD
IC, Q IC151 IC101 Q51 Q53 Q52 IC51
ADJ VR152 VR51 T51
FM FRONT END CWB1035
15 23
GND ANT
H101
CN3
CN4
CN5
CN9
CN11
IC201
IC251
IC501
IC801
IC551
BATTERY 3v
LCD
COM0 COM1
IL803
IL804
2.9v
2.8v
0.7v
2v
6v

1 2 3 4 5 6

C.BOARD


Q201 Q202 Q501 IC201
251 Q252
Q203 Q601 Q602 Q608
IC501 Q512 Q510 Q514 Q511 Q509 Q513 Q515 Q516
Q607 Q609 Q603 Q604 Q605
Q610 Q606 Q651 Q652
IC801
IC551
T206
T203 T204 T205
15 23
ANT
GND
CN3
CN4
CN8
CN5
CN2
CN11
IC201
IC501
IC801
IC551
L801
L802
L803
VR451-2
VR451-1
VR452
VR453-2
VR453-1
S801
LCD
COM0 COM1
6V
13V


ACC
GND
FL+
FR+
RL+
RR+
SP GND
AUTO ANT
ANT
ANT GND
FUSE 5A

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
IC51	2.7	2.7	2.7	0	1.9	0.5	4.9	5.0	4.9	0	4.9	8.5	4.9	2.5	0.4	4.0														
IC101	/	/	4.6	4.6	4.6	4.2	4.8	0	1.7	3.1	3.0	2.4	0.6	0	4.5	4.5														
IC151	8.5	2.4	3.6	2.8	3.9	3.9	0	0	0	/	2.7	2.7	0.3	2.7	2.7	3.5														
IC201	3.4	3.4	0	4.7	/	/	6.9	4.7	/	/	/	2.3	2.3	8.5	3.6	3.6	1.6	4.0	5.3	4.8	8.2	8.2	8.5	3.3	/	8.2	8.2	5.4	5.4	2.7
IC551	7.1	13.5	14.4	0	/	/	6.9	/	0	0	1.4	1.4																		
IC801	8.5	FM 4.5 AM 0	0	14.4	8.5	/	8.5																							

KEY SWITCH P.C.BOARD

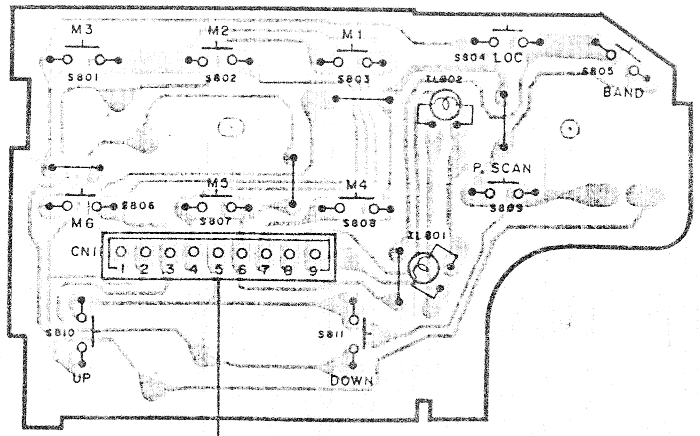
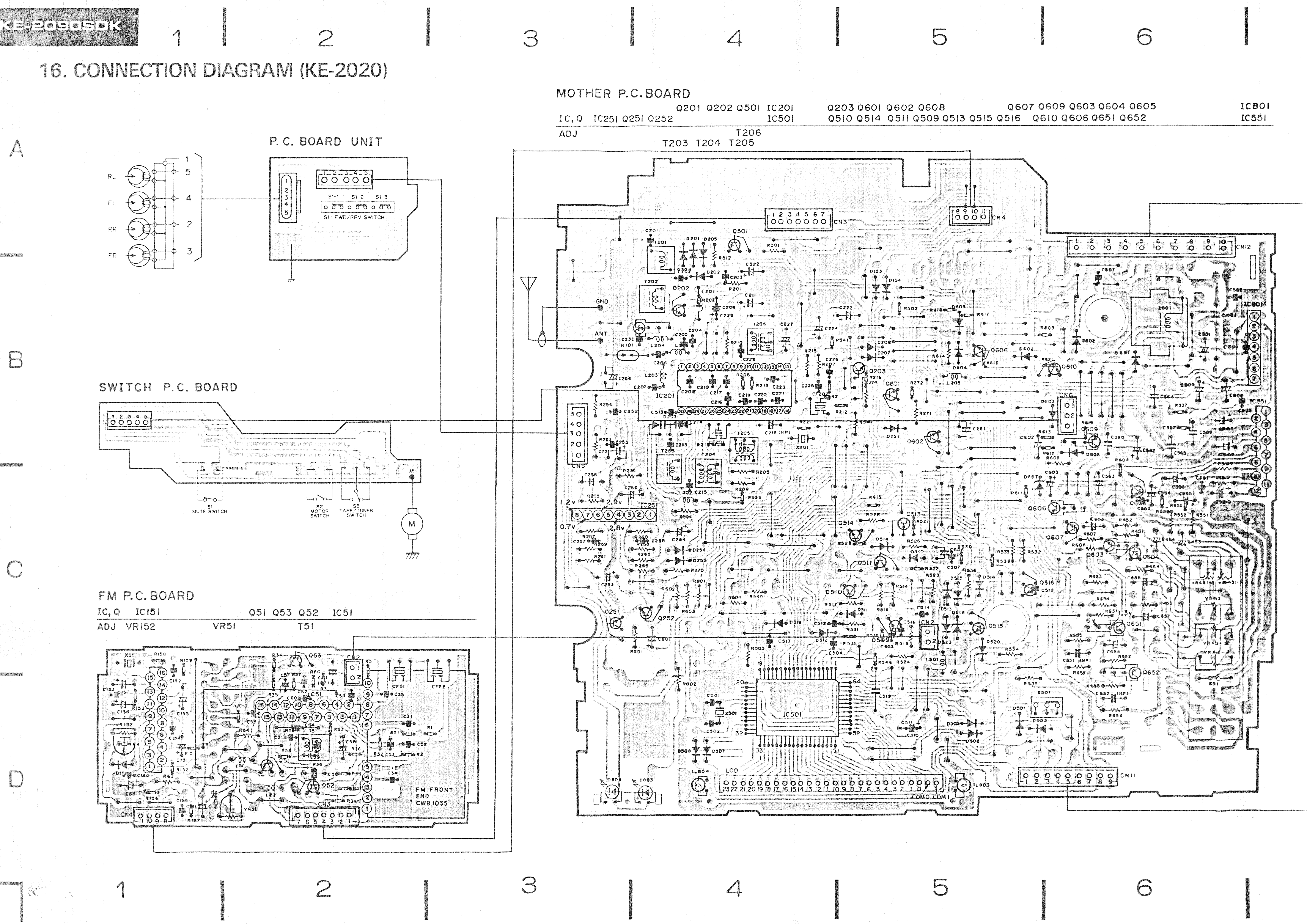
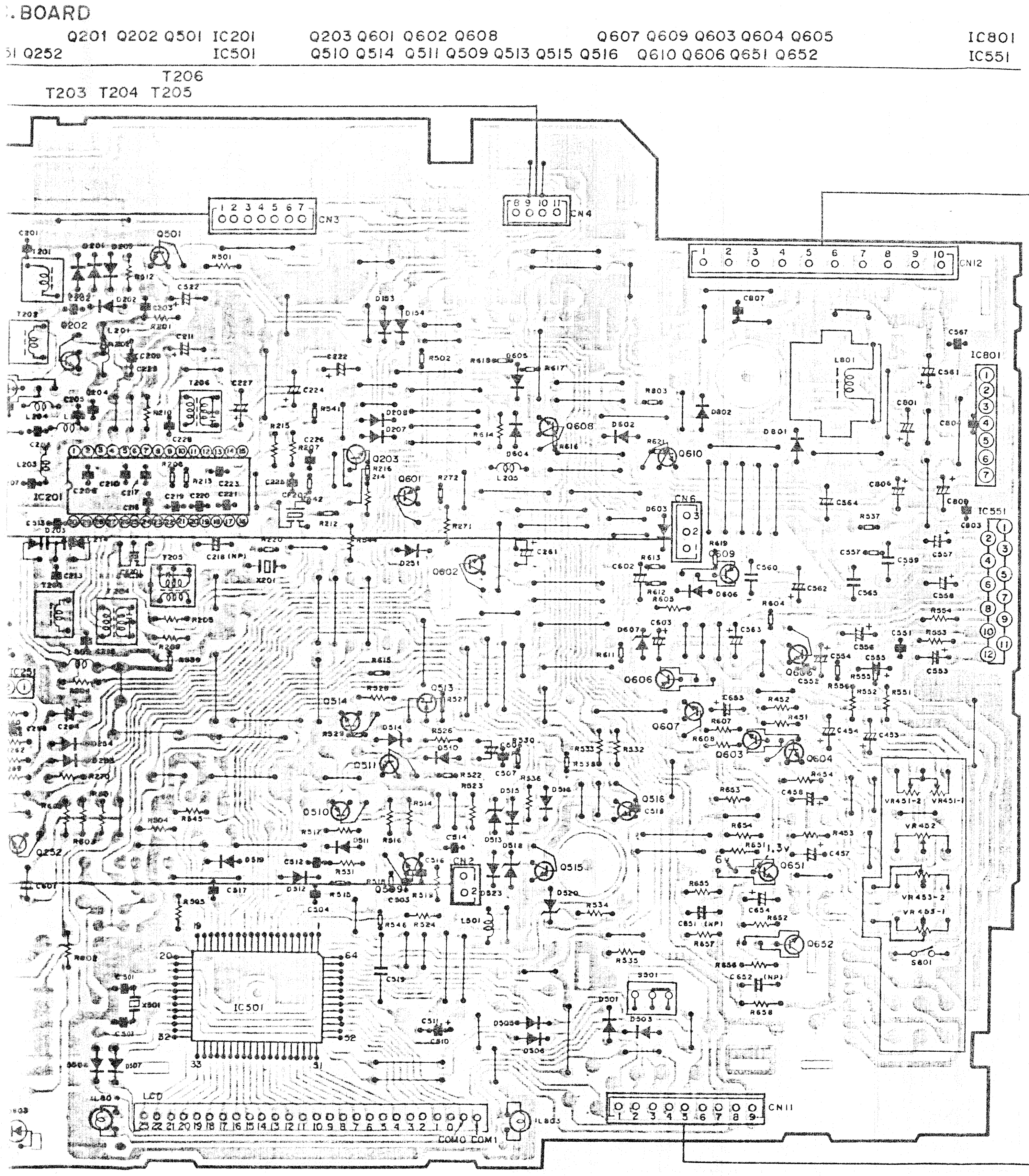

M3
S801
M2
S802
M1
S803
S804 LOC
S805
BAND
IL802
P. SCAN
S809
M6
S806
M5
S807
M4
S808
CN1
1 2 3 4 5 6 7 8 9
IL801
S810
UP
S811
DOWN

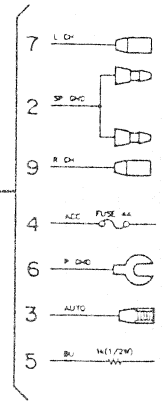
Fig. 16

16. CONNECTION DIAGRAM (KE-2020)


1
2
3
4
5
6
A
B
C
D
MOTHER P.C.BOARD
IC, Q
ADJ
IC251 Q251 Q252
Q201 Q202 Q501 IC201
IC501
T206
T203 T204 T205
Q203 Q601 Q602 Q608
Q510 Q514 Q511 Q509 Q513 Q515 Q516
Q607 Q609 Q603 Q604 Q605
Q610 Q606 Q651 Q652
IC801
IC551
P. C. BOARD UNIT
RL
FL
RR
FR
S1 : FWD/REV SWITCH
S1-1
S1-2
S1-3
SWITCH P.C. BOARD
S1
MUTE SWITCH
S2
MOTOR SWITCH
S3
TAPE/TUNER SWITCH
M
FM P.C.BOARD
IC, Q
ADJ
IC151
VR152
Q51 Q53 Q52
VR51
IC51
T51
FM FRONT END CWB1035
GND
ANT
CN3
CN4
CN5
CN6
CN11
CN12
CN2
IC201
IC251
IC501
IC801
IC551
LCD
COMO
COM1
1.2v
2.9v
0.7v
2.8v

4 5 6 7 8 9


.BOARD
Q201 Q202 Q501 IC201
1 Q252
IC501
T206
T203 T204 T205
Q203 Q601 Q602 Q608
Q510 Q514 Q511 Q509 Q513 Q515 Q516
Q607 Q609 Q603 Q604 Q605
Q610 Q606 Q651 Q652
IC801
IC551
CN3
CN4
CN12
CN6
CN2
CN11
IC201
IC501
IC801
IC551
L801
VR451-2
VR451-1
VR452
VR453-2
VR453-1
S601
LCD
COM0 COM1


7
L CH
2
SP GND
9
R CH
4
ACC
FUSE 4A
6
P GND
3
AUTO
5
BU
1k(1/2W)

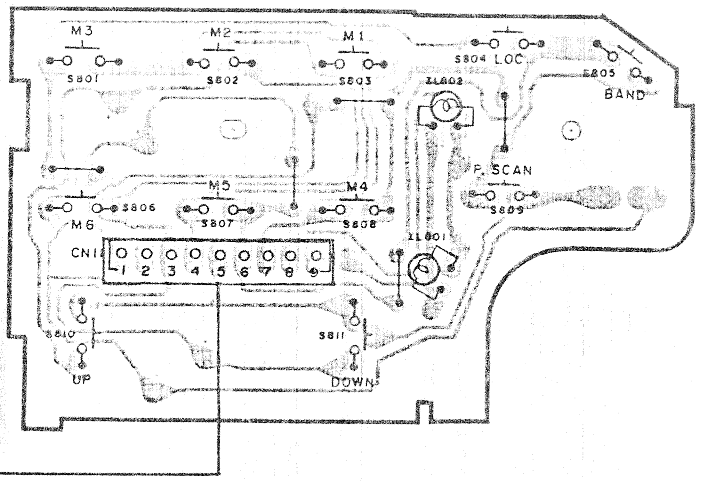
A

B

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
IC51	2.7	2.7	2.7	0	1.9	0.5	4.9	5.0	4.9	0	4.9	8.5	4.9	2.5	0.4	4.0														
IC101	/	/	4.6	4.6	4.6	4.2	4.8	0	1.7	3.1	3.0	2.4	0.6	0	4.5	4.5														
IC151	8.5	2.4	3.6	2.8	3.9	3.9	0	0	0	/	2.7	2.7	0.3	2.7	2.7	3.5														
IC201	3.4	3.4	0	4.7	/	/	6.9	4.7	/	/	/	2.3	2.3	8.5	3.6	3.6	1.6	4.0	5.3	4.8	8.2	8.2	8.5	3.3	/	8.2	8.2	5.4	5.4	2.7
IC551	7.1	13.5	14.4	0	/	/	6.9	/	0	0	1.4	1.4																		
IC801	8.5	FM 4.5 AM 0	0	14.4	8.5	/	8.5																							

KEY SWITCH P.C.BOARD

C

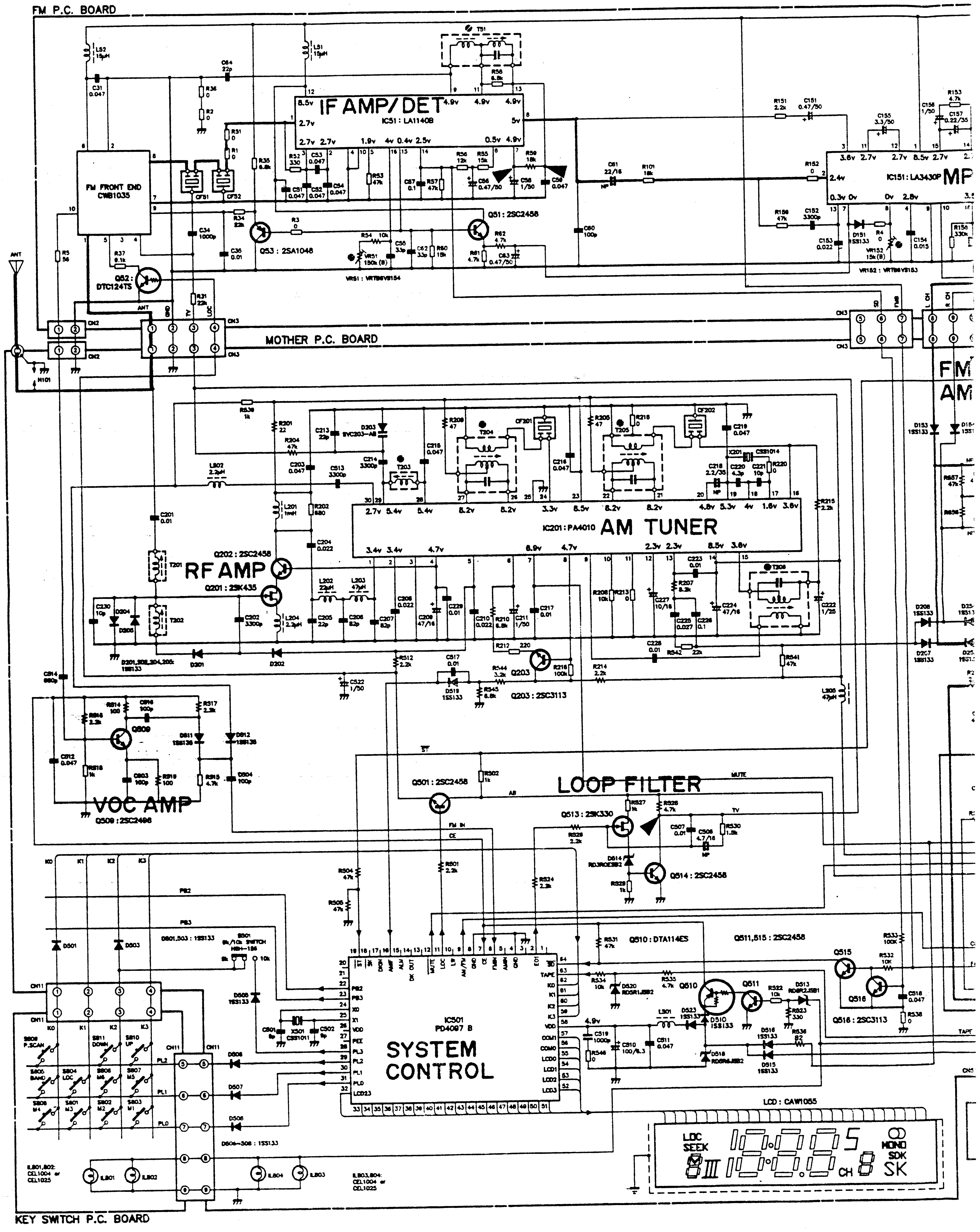

M3
M2
M1
S801
S802
S803
S804 LOC
S805
BAND
IL802
P. SCAN
M5
M4
M6
S806
S807
S808
S809
CN1
1 2 3 4 5 6 7 8 9
IL801
S810
UP
S811
DOWN

D

Fig. 17

4 5 6 7 8 9

17. SCHEMATIC CIRCUIT DIAGRAM (KE-2020)


1
2
3
A
B
C
D
FM P.C. BOARD
IF AMP/DET
IC51 : LA1140B
T51
FM FRONT END
CWB1035
CF51
CF52
Q53 : 2SA1048
Q51 : 2SC2458
Q52 : DTC124TS
VR51 : VRTB6VS154
VR152 : VRTB6VS153
IC151 : LA3430P
MP
D151
1SS133
ANT
CN2
CN3
H101
MOTHER P.C. BOARD
FM
AM
D153
1SS133
AM TUNER
IC201 : PA4010
RF AMP
Q202 : 2SC2458
Q201 : 2SK435
T201
T202
T203
T204
T205
T206
CF201
CF202
X201
CSB1014
D201,202,204,205 : 1SS133
D203
SVC203-AB
Q203 : 2SC3113
D206
D207
1SS133
L305
47μH
VOC AMP
Q509 : 2SC2498
D511
D512
1SS133
LOOP FILTER
Q513 : 2SK330
D514
RD3R0ESB2
Q514 : 2SC2458
Q501 : 2SC2458
ST
AS
MUTE
TV
FM IN
CE
IC501
PD4097 B
SYSTEM
CONTROL
Q510 : DTA114ES
Q511,515 : 2SC2458
Q510
Q511
Q515
Q516
Q516 : 2SC3113
D520
RD5R1JSB2
D510
1SS133
D513
RD6R2JSB1
D515
D516
1SS133
D518
RD6R8JSB2
D523
1SS133
X501
CSB1011
LCD : CAW1055
LOC
SEEK
MONO
SDK
CH
K0
K1
K2
K3
PB2
PB3
D501
D503
D501,503 : 1SS133
S501
9k/10k SWITCH
HIGH—18E
D505
1SS133
CN11
S809
P.SCAN
S811
DOWN
S810
UP
S805
BAND
S804
LOC
S806
M6
S807
M5
S808
M4
S801
M3
S802
M2
S803
M1
PL2
PL1
PL0
D506
D507
D508
D504~506 : 1SS133
IL801
IL802
IL803
IL804
IL801,802:
CEL1004 or
CEL1025
IL803,804:
CEL1004 or
CEL1025
KEY SWITCH P.C. BOARD
1
2
3

Tuner Amp Unit
Consists of • Mother P. C. Board • FM P. C. Board • Key Switch P. C. Board

SWITCHES:

◉MOTHER P. C. BOARD
- S501: 9k/10k SWITCH··············9k－10k
- S801: POWER SWITCH···············ON－OFF

◉P. C. BOARD UNIT
- S1: FWD/REV SWITCH··············FWD－REV

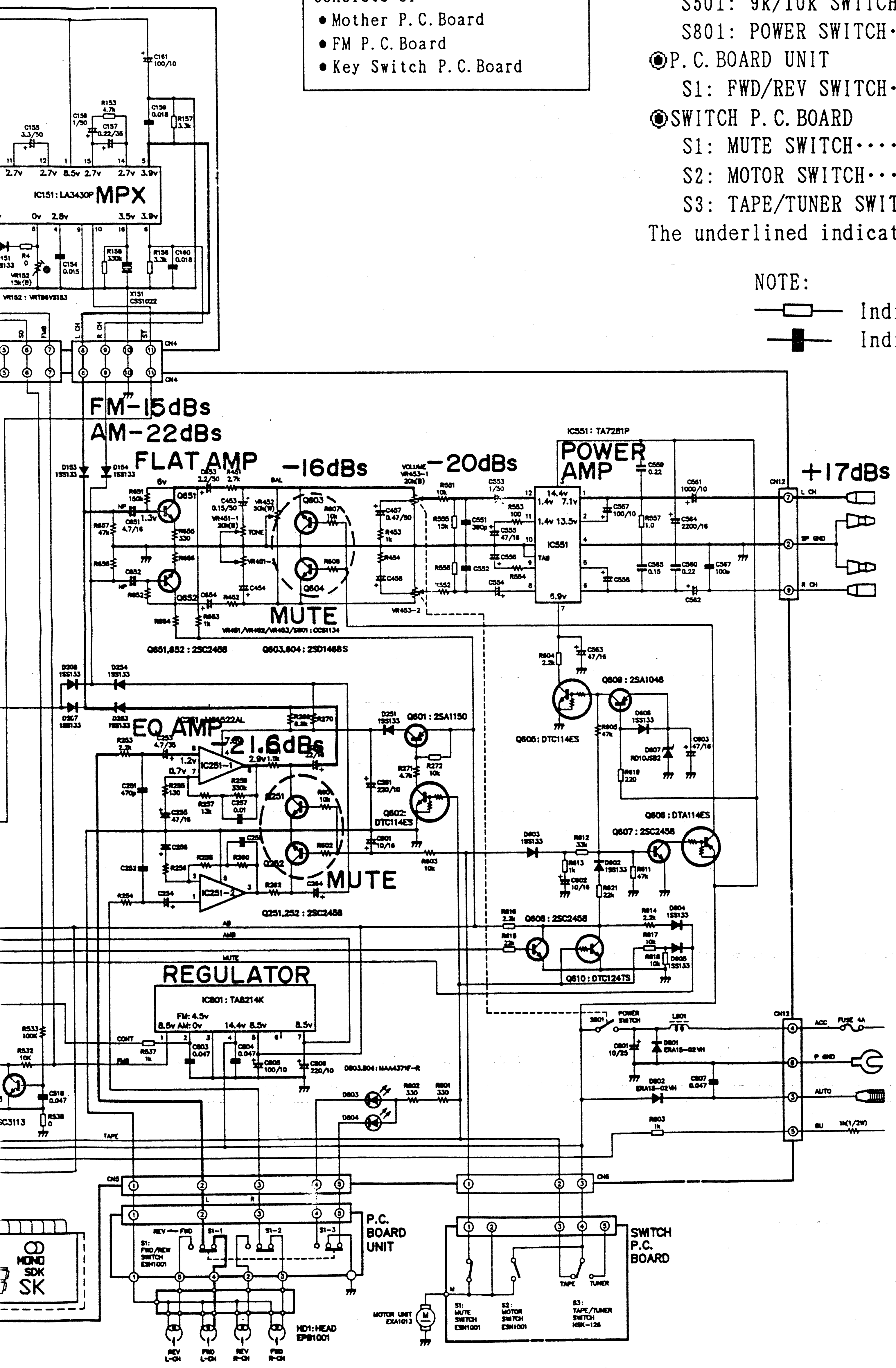
◉SWITCH P. C. BOARD
- S1: MUTE SWITCH······ON(EJECT)－OFF(PLAY)
- S2: MOTOR SWITCH·················ON－OFF
- S3: TAPE/TUNER SWITCH·········TAPE－TUNER

The underlined indicates the switch position.

NOTE:

—▭— Indicates a chip resistor.

—▮— Indicates a chip capacitor.



IC151: LA3430P MPX
FM-15dBs
AM-22dBs
FLAT AMP
-16dBs
-20dBs
POWER AMP
IC551: TA7281P
+17dBs
L CH
SP GND
R CH
CN4
CN12
MUTE
Q651,652 : 2SC2458
Q603,604 : 2SD1468S
VR451/VR452/VR453/S801 : CCS1134
EQ AMP
IC251: M5222AL
-21.6dBs
Q601 : 2SA1150
Q602: DTC114ES
Q605: DTC114ES
Q609 : 2SA1048
Q606 : DTA114ES
Q607 : 2SC2458
Q608 : 2SC2458
Q610 : DTC124TS
Q251,252 : 2SC2458
MUTE
REGULATOR
IC801 : TA8214K
D803,804 : MAA437YF-R
POWER SWITCH
S801
L801
D801 ERA15-02VH
D802 ERA15-02VH
ACC
FUSE 4A
P GND
AUTO
BU
1k(1/2W)
TAPE
AMB
MUTE
CN5
CN6
REV — FWD
S1: FWD/REV SWITCH ESN1001
S1-1
S1-2
S1-3
P.C. BOARD UNIT
HD1: HEAD EPB1001
REV L-CH
FWD L-CH
REV R-CH
FWD R-CH
MOTOR UNIT EXA1013
SWITCH P.C. BOARD
S1: MUTE SWITCH ESN1001
S2: MOTOR SWITCH ESN1001
S3: TAPE/TUNER SWITCH HSK-126
TAPE
TUNER
MONO
SDK
SK

-73.8dBs TEST TAPE : 315Hz, 160nwb/m

Fig. 18

18. EXPLODED VIEW

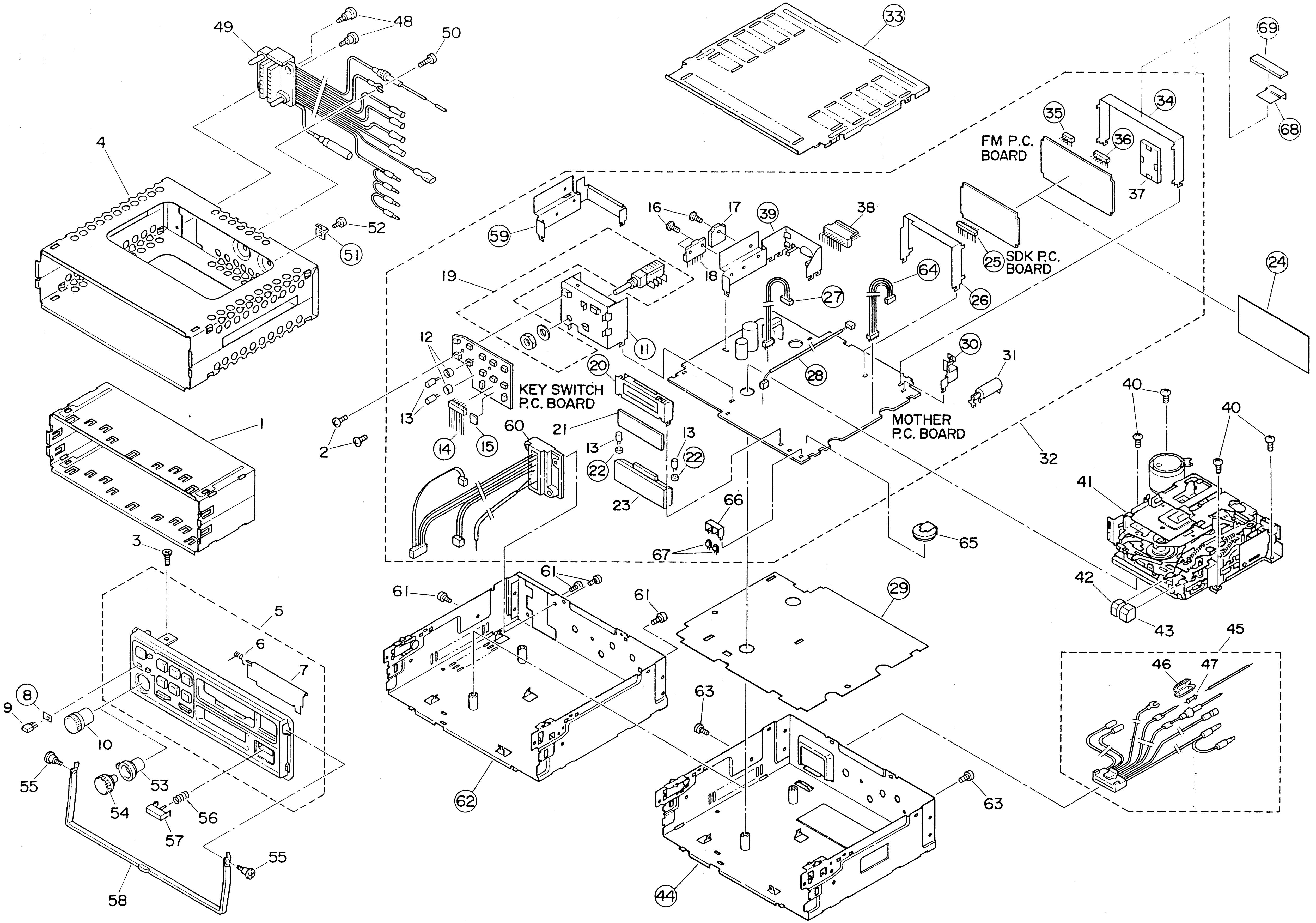

1
2
3
4
5
6
A
B
C
D
49
48
50
4
52
(51)
1
3
5
6
7
(8)
9
10
55
53
54
56
57
58
55
2
12
13
(14)
(15)
KEY SWITCH
P.C. BOARD
19
(11)
(59)
60
(20)
21
13
(22)
13
(22)
23
66
67
61
61
61
(62)
16
17
(39)
18
38
(27)
(64)
(28)
MOTHER
P.C. BOARD
(33)
(35)
(34)
(36)
FM P.C.
BOARD
37
(25) SDK P.C.
BOARD
(26)
(69)
(68)
(24)
(30)
31
32
40
40
41
42
43
65
(29)
63
63
(44)
45
46
47

Fig. 19

21. PACKING METHOD

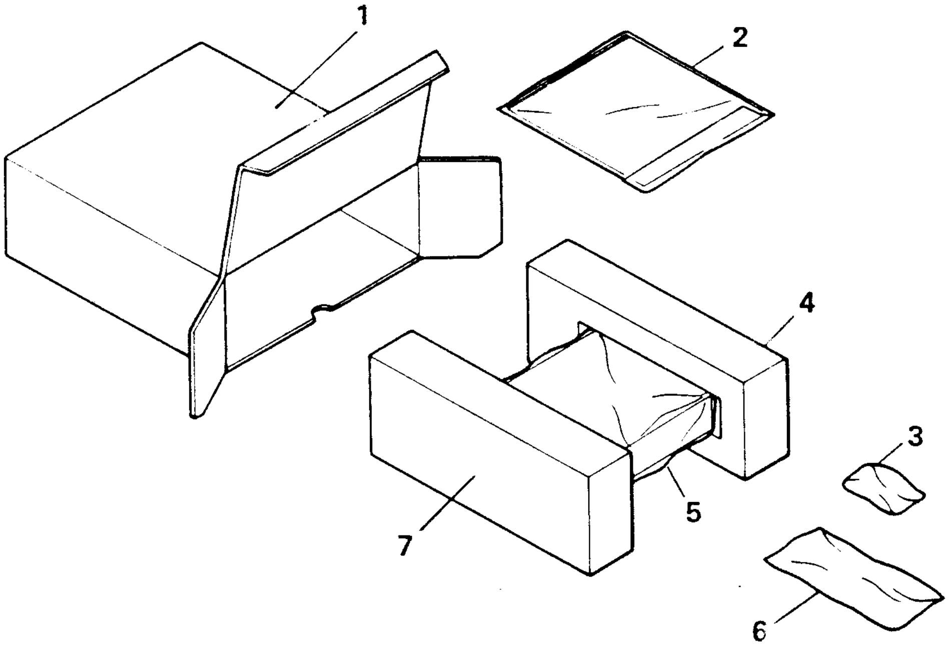


Fig. 21

• Parts List

Mark	No.	Part No.	Description
	1	CHG1606	Carton(KE-2090SDK)
		CHG1607	Carton(KE-2090B)
		CHG1603	Carton(KE-2030SDK)
		CHG1608	Carton(KE-2030B)
		CHG1605	Carton(KE-2020)
	2-1	CRD1280	Owner's Manual (KE-2090SDK, KE-2030SDK)
		CRD1281	Owner's Manual(KE-2090B)
		CRD1283	Owner's Manual(KE-2030B) (English, French, Spanish, Swedish, Dutch, Italian, Finnish)
		CRD1285	Owner's Manual(KE-2030B) (German, Norewegian)
		CRD1284	Owner's Manual(KE-2020)
	2-2		Card(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)
	2-3		Passport (KE-2090SDK, KE-2030SDK)
	2-4		Caution Card (KE-2090SDK, KE-2030SDK)
	3	CDE2391	Cord(KE-2030SDK)
		CDE2371	Cord(KE-2020)
	4	CHP1066	Styrofoam(L)(KE-2090SDK, KE-2090B, KE-2030B)
		CHP1210	Styrofoam (KE-2030SDK, KE-2020)
	5	CEG-162	Polyethylene Bag
	6	CEA1454	Accessory Assy (KE-2090SDK, KE-2090B, KE-2030B)
		CEA1451	Accessory Assy (KE-2030SDK, KE-2020)
	6-1	CNF-111	Strap(×1)
	6-2	CNV1009	Bush(×1)
	6-3	CDE1289	Cord(×1)
	6-4	CBA-102	Screw(×1)
	6-5	CBA1002	Screw(×1)
	6-6	NF50FMC	Nut(×2)
	6-7	CNC2346	Handle(×2) (KE-2030SDK, KE-2020)
	6-8	CEA1427	Accessory Assy (KE-2030SDK, KE-2020)
	6-8-1	CBH-865	Spring(×1) (KE-2030SDK, KE-2020)
	6-8-2	CNS1560	Escutcheon(×1) (KE-2030SDK, KE-2020)
	6-8-3	CNS1561	Escutcheon(×1) (KE-2030SDK, KE-2020)
	7	CHP1067	Styrofoam(R)(KE-2090SDK, KE-2090B, KE-2030B)
		CHP1210	Styrofoam (KE-2030SDK, KE-2020)

Mark	Circuit Symbol & No.	Part Name	Part No.
	C 161 557		CEA101M10LL
	C 203 215 216 219 511 512 518		CKSQYF473Z50
	C 206 207		CCSQCH820J50
	C 209 224 255 256		CEA470M16LS
	C 218		CEALNP2R2M35
	C 220		CCSQCH430J50
	C 221 230		CCSQCH100D50
	C 222		CSZA010K25
	C 225		CKSQYB273K50
	C 227 601 602		CEA100M16LS2
	C 251 252		CCSQSL471J50
	C 253 254		CEA4R7M35L2
	C 257 258		CKSQYB103K50
	C 261 806		CEA221M10L2
	C 263 264		CEA220M16LS
	C 453 454		CEAR15M50LL
	C 501 502		CCSQCH090D50
	C 503 504 516 567		CCSQSL101J50
	C 505(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)		CEAR47M50LS2
	C 506	4.7μF/16V	CCH1005
	C 510		CEA101M6R3LS
	C 514		CKSQYB681K50
	C 515(KE-2090SDK, KE-2030SDK)		CEA100M16LS2
	C 519		CKPYB102K50L
	C 530(KE-2090SDK, KE-2030SDK)		CCSQSL101J50
	C 551 552		CKSQYB391K50
	C 555 556 563 603		CEA470M16L2
	C 558 805		CEA101M10L2
	C 559 560		CQMA224J50
	C 561 562		CEA102M10L2
	C 564		CEA222M16L2
	C 565		CQMA154J50
	C 651 652		CEA4R7M16NPLL
	C 653 654		CEA2R2M50L2
	C 658(KE-2090SDK, KE-2030SDK)	470μF/16V	CCH-114
	C 801		CEA100M25L2
	C 803 804 807		CKSQYF473Z50
	C 901(KE-2090SDK, KE-2030SDK)		CKSQYF223Z50
	C 902(KE-2090SDK, KE-2030SDK)		CKSQYB391K50
	C 903(KE-2090SDK, KE-2030SDK)		CKSQYB391K50
	C 904(KE-2090SDK, KE-2030SDK)		CEA100M16LS2
	C 905(KE-2090SDK, KE-2030SDK)		CEA220M16LS
	C 906(KE-2090SDK, KE-2030SDK)		CKSQYB222K50
	C 907(KE-2090SDK, KE-2030SDK)		CEA470M16LS
	C 908(KE-2090SDK, KE-2030SDK)		CCSQCH102J50
	C 909(KE-2090SDK, KE-2030SDK)		CKSQYF223Z50
	C 910(KE-2090SDK, KE-2030SDK)		CCSQCH102J50
	C 911(KE-2090SDK, KE-2030SDK)		CKSQYF473Z50
	C 912(KE-2090SDK, KE-2030SDK)		CEA100M16LS2
	C 913(KE-2090SDK, KE-2030SDK)		CEA470M16LL
	C 914(KE-2090SDK, KE-2030SDK)		CEA100M16LS2
	C 915(KE-2090SDK, KE-2030SDK)		CQMA102J50
	C 916(KE-2090SDK, KE-2030SDK)		CQMA102J50
	C 917(KE-2090SDK, KE-2030SDK)		CKSQYB222K50
	C 918(KE-2090SDK, KE-2030SDK)		CQMA683J50
	C 919(KE-2090SDK, KE-2030SDK)		CEAR33M50LL
	C 921(KE-2090SDK, KE-2030SDK)		CQMA473J50
	C 922(KE-2090SDK, KE-2030SDK)		CQMA473J50
	C 923(KE-2090SDK, KE-2030SDK)		CKSQYF473Z50
	C 924(KE-2090SDK, KE-2030SDK)		CEA470M16LL

Unit Number :
Unit Name : Switch P.C.Board

Mark	Circuit Symbol & No.	Part Name	Part No.
**	S 1 2	Switch(MUTE, MOTOR)	ESN1001
**	S 3	Switch(TAPE/TUNER)	HSK-126

Unit Number :
Unit Name : P.C.Board Unit

Mark	Circuit Symbol & No.	Part Name	Part No.
**	S 1	Switch(FWD/REV)	ESH1001

Miscellaneous Parts List

Mark	Circuit Symbol & No.	Part Name	Part No.
**	HD 1	Head	EPB1001
**	M	Motor Unit	EXA1047
	B 501(KE-2090SDK, KE-2090B, KE-2030SDK, KE-2030B)	Battery	CEX1008